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GLEANINGS IN BEE CULTURE

VOL. XXXIII.

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A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

Philadelphia.—As usual around the holidays, there is not much call for either comb or extracted honey. Prices remain about the same as the last quotations. Some odd lots having arrived in the market in the last ten days has weakened the price of lower grades. We quote fancy white, 15@16; No. 1, 13@14; amber, 11@12. Extracted, white, 7@8; amber, 6@7. Beeswax, 26. We are producers of honey and do not handle on commission.

Wm. A. Selser,
Dec. 26. 10 Vine St., Philadelphia, Pa.

St. Louis.—Since our last no change occurred in the honey trade. The demand is very slow for comb as well as extracted. We quote as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11; broken or leaking honey, 7@9. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and Southern honey, in 5-gallon cans, 5½@6; Southern in barrels, 5@5½. Beeswax, prime, 28½ per lb.

R. Hartmann & Co.,
Dec. 19. 14 So. Second St., St. Louis, Mo.

Cincinnati.—The demand for honey at the present time is not good, owing to the approach of the holidays, when too many sweets are found on the market. On the other hand, the trade is well supplied with comb honey, that will require a considerable length of time to be consumed. We are offering extracted white clover in barrels and cans at 6½@8½. Amber, 5¾@6½. Fancy comb honey, 12½@14. Beeswax, 29@30.

The Fred W. Muth Co.,
Dec. 19. 51 Walnut St., Cincinnati, O.

Boston.—During the holiday season the honey demand has been practically at a standstill. Stocks seem to accumulate rather than to diminish. While prices are practically as per our last, yet, on the whole, the tendency seems to be to a lower level. Our market today is practically as follows: Fancy white, 16; A No. 1, 15; No. 1, 14; with practically no demand for No. 2. Extracted, from 6 to 8, according to quality.

Blake, Scott & Lee,
Dec. 23. 31-33 Commercial St., Boston, Mass.

Chicago.—The holidays are as usual not favorable to the sale of honey, and we therefore quote the market dull with prices unchanged from last quotations. Fancy comb honey brings 14, but quality as well as appearance is necessary. No. 1 sells at 12½@13; off grades difficult to move at 1@3 less. Extracted choice white, 7@7½; amber, 6@7, with off grades about 5½. Beeswax, 30.

R. A. Burnett & Co.,
Dec. 20. 199 South Water St., Chicago, Ill.

Cincinnati.—Comb honey is now coming in more freely, and prices if any thing have moderated a little. The sales made and prices obtained were: No. 1 fancy water white, 12½@13½; single cases, 14. Extracted is sold as follows: White clover, in barrels, 6½; in cans, 7½ and 8; amber, in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27.

C. H. W. Weber,
Dec. 19. 2146-8 Central Ave., Cincinnati, O.

Kansas City.—The market on honey is very slow, and prices inclined to be weak. White comb sells at $2.25 per case; amber and other grades selling as low as $2.00. Extracted, 5½@6½. Beeswax, 30c per lb.

C. C. Clemons & Co.,
Dec. 19. Kansas City, Mo.

Buffalo.—Honey has not sold as well as it ought to for this time of the year. Prices remain steady, and stocks not heavy. Fancy white comb, 14@15; A No. 1 white comb, 13@14; No. 1 white comb, 12½@13; No, 2 white comb, 11@12; No. 3 white comb, 10@11. Extracted, white, 7@7½; amber, 6½@7; dark, 5½@6; No. 1 dark comb, 11@12; No. 2 dark comb, 10@11. Beeswax, 30@32.

W. C. Townsend,
Dec. 24. Buffalo, N. Y.

San Francisco.—Honey, new crop comb, per lb., 10@13. Extracted, water white, 7; light amber, 6; dark amber, 5. Beeswax, per lb., 28@29.

Ernest Schaeffle,
Dec. 15. Murphys, Cal.

Denver.—The demand for comb honey is light, and prices are ruling lower. No. 1 white, per case of 24 sections, $2.40; No. 1, off grade, $2.25; No. 2, $2.00. Extracted, white, 7@7½c per lb.; light amber, 6¾@7c. Beeswax, 22@25c per lb.

The Colorado Honey Producers' Ass'n,
Dec. 20. Denver, Colo.

Toledo.—The demand for comb honey is a little dull, as it usually is at this season of the year, and the prices have weakened a little. We quote fancy white comb at 14; No. 1, 13; with a very little demand for amber. Extracted white clover, in barrels, 6½@7; in cans, 7½@8½ Beeswax, 27 and 28.

Griggs Bros.,
Dec. 19. Toledo, Ohio.

Toronto.—We quote as follows: Extracted, 7@8; comb, $1.25@$2.00 per dozen.

E. Grainger & Co.,
Dec. 22. Toronto, Can.

Detroit.—Demand is light at present for either comb or extracted honey. Fancy comb honey, 13@13½; No. 1, 11@12; dark No. 1, 10; extracted, white clover, 6@6½. Beeswax, 25@27.

M. H. Hunt & Son,
Dec. 20. Bell Branch, Mich.

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Wanted.—New crop white comb honey. Describe what you have, and state price.
Evans & Turner, Columbus, O.

Wanted—Comb and extracted honey. State price, kind, and quantity.
R. A. Burnett & Co., 199 South Water St., Chicago, Ill.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
Chas. Koeppen, Fredericksburg, Va.

Wanted.—Clover extracted honey in cans or barrels; send sample, and state quantity, whether in barrels or cans, and price delivered at Chicago or Medina.
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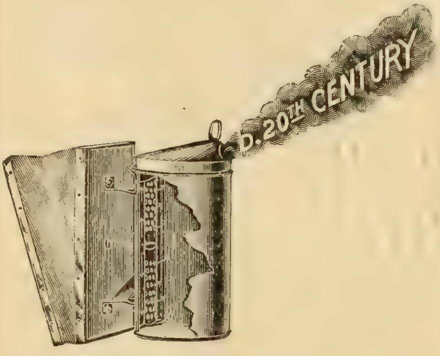

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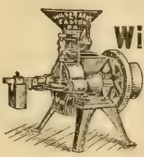

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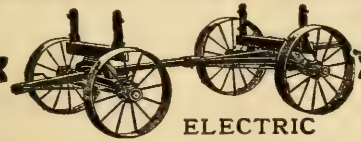

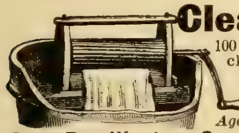

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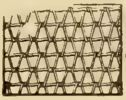

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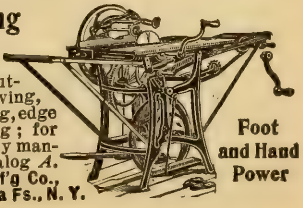

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio

Vol. XXXIII. JAN. 1, 1905. No. 1

Stray Straws

By Dr. C. C. Miller.

THE VALUE of that article on page 1155 depends upon the truth or falsity of the statement that white clover never winter-kills. What do the authorities at the agricultural experiment stations say about it? Please look it up, Bro. A. I.

C. E. WOODWARD, p. 1157, thinks the merits of the break-joint honey-board have been overlooked. Some of us who used them for years appreciated them highly; but we were glad to throw them away for something better. In any case I wish Mr. Woodward would tell us how a honey-board would prevent the bees from fastening the frames together or fastening the bottom-bar to the floor.

THE EDITOR says, p. 1159, "Your form of agreement is all right, except that you leave out all reference as to who furnished the hives—for the increase that goes to the operator." Doesn't the first sentence, p. 1159, say the proprietor shall do it? Clause 5, Management, is rather loose—gives chance for a scrap as to how much increase "is consistent with good management." [Thanks for the correction.—ED.]

"MR. ABBOTT insisted that bees did not *freeze* to death if they had plenty of stores—that they starved to death." P. 1150. I understand him to say in the last issue of *Modern Farmer* that a single bee will quickly freeze, and I suppose he would admit that two bees on a solid comb of honey would freeze. What I'd like him to tell is what number of bees must be reached before they will stop freezing and begin to starve.

I MOVE an amendment to Bro. Doolittle's rule, p. 1147, where he says he prepares "sections to the amount of 125 pounds for each colony I have in the fall." That would leave him short if he should have 166⅔ pounds per colony, as he reports for one year. My amendment is to have for each colony enough for the maximum crop, with about 10 sections thrown in for empty and unfinished sections—not less than 175 in his case.

G. M. DOOLITTLE, p. 1147, tells about lying awake one to three hours studying up what to do with the bees. Tut, tut, Bro. Doolittle, don't you know it's bad for the health to do that sort of thing? When you go to bed, go right to sleep; do your studying in daytime. And yet—and yet—the man who has never lain awake studying about his bees is hardly a genuine bee-keeper. I've learned a whole lot about counting when trying to let go of some tough bee problem after the "one to three hours" were up.

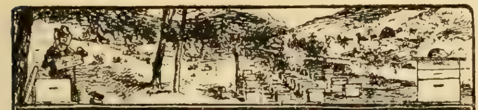
"THE RABBET, as now made in the Dovetailed hive," says Dr. Kerr, p. 1164, "is its weakest point." I strengthen it very satisfactorily by nailing on each end a 1½-inch cleat as long as the outside width of the hive, the cleat coming flush with the top of the hive. Such a cleat is worth while for that purpose alone, and is worth while for the sake of handling the hive, even if the rabbet didn't need reinforcing. [Each bee-keeper can do that for himself, but the supply-dealer can not very well.—ED.]

NEVER RUN ACROSS extra-yellow bees that were not cross, Mr. Editor? p. 1162. I had them from G. M. Doolittle that were probably as golden as any on the face of the earth, and I do not remember any trouble with their tempers. [We have on file a list of several customers who bought some of the Root Company's bees that had a dash of yellow blood. All were pronounced cross. One man is even now so mad that he swears he will never again deal with the Root Co. He called the bees "vixens," the meanest and crossest bees he ever saw or heard of. You see, the drones of some of these yellow bees got to flying, and the result was we had some quite bad complaints of queens that had mated with them. The yellow drones referred to were not from Doolittle's queens. This stock came from one of our Southern breeders. While I do not deny that there may be gentle bees among yellow stock, their disposition, so far as I have been able to observe, is much crosser than the *average* yellow-colored Italians.—Ed.]

You arise, Mr. Editor, p. 1143, to ask how I know that bees carrying pollen were only five days old. I'll tell you. I got an imported queen and wanted to make a sure thing of introducing. I fastened the queen in a hive with not a living bee, but with brood just ready to emerge. Five days later the entrance was opened, and in a short time the liberated bees returned with loads of pollen. Isn't that proof? [Could not be better. You remind me of the witness who, when asked by the prosecution how far he was away from the man who was shot, replied instantly, "Nine feet, four and a half inches." "How do you know it was exactly that?" "Because," said the witness, "I thought some fool of a lawyer would ask me, and so I measured it immediately." Yes, your proof is indisputable. I felt sure you knew whereof you were talking; but sometimes we like to know the real foundation of a direct and positive statement.—Ed.]

Your recollection as to the consensus of opinion as to mid-winter flights, I *think*, is wrong, Mr. Editor, p. 1145. I think that the general opinion was that taking bees out for a flight and then returning them to cellar was a damage—certainly that was my opinion, an opinion that remained undisturbed until you made trouble by raising the question as to its correctness. As I said, p. 1145, I've been taking some out for a winter or two, but I couldn't be positive whether they were better or worse for it. I think you overestimate the unbrokenness of the cold in this location, for usually there comes a day before time for taking out that is warm enough for a flight. When that day comes this winter, I expect to take out some bees. [I sincerely hope you will have a suitable flight-day so you can test a part of your bees. I do not like to be alone in this controversy of mid-winter flights. I do not guess, but I *know* it is a good thing here at Medina, and I should like to know how far the principle would apply to other localities.—Ed.]

Mr. Editor, I don't understand what you say, page 1149. If you have some private information about the views of the Board of Directors, out with it. I have no recollection that they have passed any resolution which commits them to the view that defending members in their rights stands as the most important work to be done; neither do I remember that any member has privately expressed such a view. On the contrary, within a few weeks I have offered a motion whose passage I somewhat confidently expect, providing that in no case shall the National bear more than half of the expense of any lawsuit. The National has done a grand work in establishing precedents in such cases, and it is to be hoped that the time is not far distant when it may not be necessary for it to spend money to pay even half the cost of a lawsuit. If you have any stronger appreciation than I of the importance of fighting adulteration, it must have a strong rating with you; and I don't know that my views differ from those of other members. I may not agree with you as to how the fighting should be done; but as to the vigor of the campaign I'm with you. I hope the battle may be waged so fiercely that adulteration in its turn may become a secondary matter, and another thing that I have now in mind may come to the front; "but that's another story." [I had no private information from the Board of Directors nor from any member of it. If you will turn to the first page of the annual report of the General Manager for 1904, and read the published letter from the Chairman of the Board of Directors, you will see where I obtained my information. I was not criticising Mr. Marks or the Board, but I only regretted that the policy there stated should be as follows: "The suppression of adulteration . . . is a secondary object with the Association . . . The Association must not be expected to neglect or jeopardize the prime object of the Association, 'to protect and defend its members in their lawful rights.'" I do not understand by this that the policy is to ignore the question of adulteration, but only to put it partially in the background in order that the defense feature may be given the fullest prominence. Considering the number of petty quarrels between bee-keepers and their neighbors—quarrels which have come up of late and which could have been avoided—it begins to seem as if the insurance feature is being overdone. Indeed, I know that the General Manager is being overworked in settling up and adjusting matters at issue between the bee-keeper and his neighbors. So arduous have his duties become that it is a question whether he or any man can stand it much longer without breaking down in health. To settle a neighborhood dispute helps *one member only*. To strike a blow at adulteration helps *every member of the Association*. The greatest good to the greatest number should now be our motto. Understand, I am not quarreling with the Board of Directors; and if I had been on the Board at the time the action was taken I undoubtedly would have voted with the majority. But conditions have changed. I now believe that the adulteration question should be the most prominent, and is the one that should receive the best brains and thought of the General Manager, and of the Board of Directors back of him. I do not mean to convey the impression that the Association should drain its treasury in this or any *one* line of work; but I do believe that we should either lessen the duties of the General Manager or pay him a larger salary. If we cut off the labor involved in neighborhood quarrels he can give more attention to other matters pertaining to the Association. Now, let it be understood that General Manager France has not complained to me or any one else; but I do know that he is an overworked servant of the Association. I hope your motion will prevail. I believe it will.—Ed.]



BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

Bee-keepers should not have to shake bees off the combs when the weather is too cool for them to fly freely. If you are ever obliged to do such a thing, shake them into an empty story placed on top of the brood-chamber. They are thus more likely to get into the cluster without becoming chilled.

❧

An item in the Kingsburg (Cal.) *Recorder* says that at a recent meeting of the stockholders of the Central California Honey-producers' Association, it was decided to disincorporate the organization. It is said that last year's business was not very successful. It is a pity that an enterprise so promising, one of the pioneers in a field where organization and co-operation are so badly needed, should thus collapse so early in its career.

❧

Miss Wilson's article on cleaning propolis from separators, etc., by the use of lye is valuable; but if she will tell us whether the kettle into which she puts three cans of lye holds ten, twenty, or a hundred gallons, it will be a little clearer to the inexperienced. I once boiled a lot of hives and frames, using a box of lye to about forty gallons of water, which is probably much less lye than Miss Wilson used. It took off the propolis fairly well, though more lye would doubtless have removed it more quickly and thoroughly.

❧

Some of my correspondents have sent me copies of their local papers in which they have had inserted in the form of a news item the offer of the National Bee-keepers' Association to forfeit $1000 for samples of manufactured comb honey. More of this might be done, with very good effect. Most papers would be entirely willing to publish this if it were properly brought to their notice. It gives a local interest to the matter, and adds impressiveness to say that "The National Bee-keepers' Association authorizes G. W. Knowles, its local representative (or any other member), to forfeit $1000 to any one who will produce two sections of manufactured comb honey." Some have asked me why two sections should be required. Although I have seen no reasons given for this, I presume it is because this gives a good opportunity to point out the fact that no two sections of honey are exactly alike.

[This is a most excellent idea; and if all our subscribers would prepare an article for their local papers, denying the existence of manufactured comb honey, it would go a long way toward correcting the general belief that comb honey is manufactured.—Ed.]

❧

An English bee-keeper, writing in the *American Bee-keeper*, extols the gentleness of his Punic bees, but declines to believe that any one would be so rash as to attempt to handle bees without a veil, since "It is beyond belief that any race of bees armed with stings will permit themselves to be robbed without attempting to retaliate, for one's breath is sure to invite attack, even from half-stupefied bees." Sounds queer, doesn't it? I wonder what proportion of what might be called professional apiarists habitually use a veil. A number I know do not. As for myself, even when handling all sorts of bees under all sorts of conditions, as bee inspector, it is but very seldom that I would be bothered with a veil.

❧

I do not believe that dry weather affects the color of honey, except that in non-irrigated countries it is apt to lessen the yield, so that bees, in their search for honey, work on plants that ordinarily they would leave alone. The honey thus secured is apt to be darker and poorer in quality than what they get from ordinary sources. In the irrigated districts of Colorado and Utah, where alfalfa is grown, the air is extremely dry, though the ground may be well watered. When alfalfa honey is secured free from any admixture, it is water-white in color, and I have never seen any thing to indicate that the weather had any thing to do with the color. In this valley, though, it is but seldom that alfalfa honey is secured alone. An average of my honey, even excluding the fall honey, which is distinctly darker in color, is of a light golden tinge.

❧

I have been unable to learn any thing further about the way in which comb honey is used in confectionery, owing to the absence from home of the friend who sold the honey for this purpose; but I imagine that, like most soft candies, it is made with but a moderate amount of cooking and a great deal of stirring, especially just after it is removed from the fire. In this manner the wax is thoroughly mixed through the candy, and helps a very soft candy to keep its shape instead of melting down and becoming sticky with the changes of temperature and moisture. Paraffine is sometimes used for this purpose; but the comb honey, containing wax in about the right proportion, already finely divided and well mixed through the mass, is probably less trouble, besides being superior in other respects.

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I have no quarrel with those who, like H. H. Hyde, prefer the Hoffman frame and are willing to take as much pains to keep it in running order as he says he does. I have said repeatedly, and I will say it again, that the Hoffman frame is all right for such bee-keepers. But the average bee-keeper will not trouble himself to go over his hives every spring and scrape off all surplus propolis. In fact, it is almost impossible to get him to do any thing whatever to keep his hives in good working order. I should not enjoy that sort of thing myself. Many of my hives have had bees in them for eighteen years or more, and I have not yet found any necessity for scraping the propolis off the end-bars. The frames separate about as easily as they did on the start. I really should not care to undertake the job of scraping the propolis off the end-bars of the nearly 5000 frames I have in use every spring. But if you like to do it, and have time for it, it is all right. My only contention in regard to the Hoffman frame is that, in the hands of the average bee-keeper, it comes pretty near not being a movable frame.

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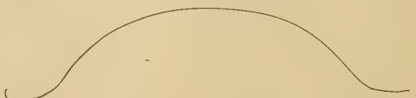
Doubtless some have felt that Prof. Eaton's comment on the article of W. K. Morrison on "The Comb-honey Lie" was too severe. It was caustic criticism, it is true, but I can not but feel that it was deserved. While the article in question contains much that is good, a part of it is misleading. It makes statements that many persons in the ordinary walks of life, to say nothing of those who have had special training on these subjects, know to be exaggerated and untrue. We should understand, in the first place, that Prof. Eaton's criticism applies only to the paragraph relating to glucose. This paragraph was quoted in the *American Bee Journal*, and it was against this quoted paragraph that Prof. Eaton's attack was directed. I have felt for a long time like entering a protest against some of the things that have been said in the bee journals about glucose. Some glaring misstatements have been made. At other times, while what has been said was not exactly untrue, the facts have been distorted and given a deceptive coloring. Doubtless this was not intentionally so. When a man wants very much to believe a thing he does not question very closely the evidence in its favor, and he is quite apt to overlook the evidence against it. So we have such statements as "Bees can not be made to take glucose;" "glucose is poisonous to bees;" "they will starve sooner than touch it," etc. We can not afford to make these misrepresentations. We have suffered a great deal from the "scientific pleasantries" and downright romancing in regard to our industry in the newspapers and magazines, but we have no right to complain of it as long as we employ the same tactics. Such arguments, wholly untrue, or containing only half the truth, may seem to serve a temporary purpose; but sooner or later they will work against us. There is plenty of argument against the adulteration of honey by glucose or any other substance without resorting to misrepresentation. We weaken our position and furnish weapons to our enemies when, in our arguments, we depart from the plain truth. When we can not confine ourselves to that, it would be better to say nothing.

◆

With regard to the use of springs for keeping brood-frames pressed together, the idea is original with me. I have experimented somewhat with them for that purpose, but am not yet prepared to say whether I like them as well as screws. I can not agree with those who think neither is necessary. I have had abundant opportunity for testing this. Most of my hives have been in use a long time, about eighteen years or more. It is but natural that in some the screw feature has become worn out, usually through the failure of the screw-thread cut in the soft pine of the hive side. With these, until I have got around to repairing them, I have had to depend on crowding them closely together with the knife I use in separating the parts of hives. To me, at least, this is not nearly as satisfactory as keeping them crowded up with the screws.

Inexperienced bee-keepers can not be depended on to do any thing properly. My experience in inspecting bees has shown me that not one in ten will keep Hoffman frames crowded together. In employing help to handle my hives, I have found it very difficult to get them to tighten up the screws after they have been loosened for any purpose. It is for this reason I think that springs might be better for the average bee-keeper than to use screws or to attempt to get along without any thing of the kind. If they could be induced to put them in place once, they would stay there in full effectiveness until they were removed, which might not be for years. When they are removed, something would have to be done with them. While some of them would doubtless be lost and others purposely dispensed with, I think most of them would find their way back into the hives, and it would be hard to put them into the hives so that they would not do some good. For brood-frames I think it would be advisable to use a heavier spring than is necessary for supers. They should be made of well-tempered material, and should have a sharp backward bend on one end so that they can be readily removed with the ordinary hive-tool. The diagram below shows the only really satisfactory super-spring I have ever used, ⅜ wide. I will send you a sample if you wish. These came from the G. B. Lewis Co. [This super spring is exactly the shape devised by the Root Co., and adopted by the G. B. Lewis Co., although it is after the *general* pattern of the one used by Capt. J. E. Hetherington something like thirty years ago. For use in the brood-nest a much stiffer spring undoubtedly would be required, and I am not so sure



but such a device for producing compression would give excellent results in connection with the Hoffman frame.—ED.]

Conversations With Doolittle

SPRING MANAGEMENT.

A knock at the door! Mrs. D. ushers in a stranger. He sits down by the fire, holding out his hands to the same, and says, "Cold day, this!"

"Yes, stranger, this is a cold day. Ten below zero when last I looked."

"This, I suppose, is Mr. Doolittle, the bee-man."

"That is what I am called by some."

"My name is Weeks, and I should like to talk with you a little time, if agreeable, about what to do with bees in the spring when we commence active operations with them, say from the time they are set out of the cellar till the first flow of nectar which gives a surplus."

"Well, I am agreeable. What is your first flow of nectar, Mr. Weeks?"

"That flow is usually from white clover in our section."

"By your saying 'set out of the cellar' I am led to think that you winter your bees in the cellar."

"Yes. I have not been in the business long, but I think cellar wintering is the best way to winter bees here in the North."

"Undoubtedly that is correct. And the first work that will confront you in the spring will be setting the bees from the cellar, so we will talk about that first. I follow a different plan in setting the bees out from what most apiarists do; and after trying all the different plans for years which have been given I like the one I now use better than any other."

"I did not know that there were different plans for setting out, and I shall be only too glad to hear of yours."

"I always leave a few colonies outdoors during winter, to 'liven up the gloom' a little should a warm day occur; and, beginning with the first day in which these outdoor bees gather any pollen, I commence at about 2:30 P.M. to set out a part of those in the cellar, say from ten to fifteen colonies, as the case may be, scattering them about the bee-yard so that they will be as far apart as possible, and yet be within the limit of what space I wish the yard to occupy."

"Why do you do that? I set mine out all at once, and supposed every one did, setting each on the stand it occupied the summer before."

"Yes, that is the way I formerly did; but in setting out as I now do, there is no need of keeping track of where they formerly stood, and yet not having any mixing of bees, as is the case where all are set out at once and near together. Were all set out at once, as most apiarists do this work, there will be more or less of colonies mixing up, unless each colony is set on the same stand it occupied the fall previous. To set them thus requires a great deal of extra work, numbering hives, stands, etc., which is quite an inconvenience, and even then does not prevent some colonies getting far more than their share of bees."

"I know that the numbering of stands, etc., requires work, but had supposed there was no other way. But go on."

"To set out, I place my spring wheelbarrow and lighted smoker near the door of the bee-cellar, when I carefully open the door, quickly step in, and take the hive nearest the door, placing it on the wheelbarrow, when the door is immediately shut again. The bees in the hive now begin to realize that their long winter nap is at an end; and unless some precaution is used they will fly out of the hive to quite an extent."

"Yes, and sting like adders—at least mine do. Tell me how you remedy this."

"To avoid this state of affairs I now blow several puffs of smoke in at the entrance or under the hive, when a wet cloth is so placed that it will keep the bees in till they are set where they are to stay, when the cloth is taken off and the bees allowed to fly."

"Don't they rush out pell-mell at first?"

"No. They come out as leisurely as they would had they not been disturbed; while, had not the smoke been given, they would have all piled out of the hive with a rush, or pell-mell as you put it."

"I am glad to learn about this, as mine have always bothered about coming out and stinging, scattering all about on the road to the apiary, and getting lost."

"Yes, I know of these troubles from former experience. And this going out slowly not only overcomes that part, but it is a great advantage to them in marking their location and repelling robbers. The next pleasant day more are set out in the same way, and at about the same time, scattering them about as before, but paying no attention as to how near they come to those already out, for they are liable to mix only with those set out at the same time."

"There is another new thought to me, and I am led to believe that is right. One time it clouded up while I was setting the bees out, so I had to stop for that day; and I noticed when I set the rest out that they did not mix at all with those set out before. But after setting out, what next?"

"The next work after setting out is to know that all have plenty of stores."

"Yes; but how can this be found out should it be too cold for the bees to fly, as is often the case?"

"To find out in this matter I generally look after the honey the first cool morning, when I carefully raise the quilt or cover and look for sealed honey along the top-bars of the frames. If plenty is seen they are all right till they are to be carefully looked after three weeks later. If little or none is seen, they must be fed; for if we are to reap good results from our bees they must have plenty of stores at this time of the year to encourage brood-rearing."

"That is a new way to tell about the stores to me, and it appears simple and easy. But suppose you have to feed—what then?"

"For feed at this time, I prefer combs of sealed honey set in next to the cluster. If none such can be had we must feed sugar syrup, or liquid honey if we have it; but the latter tends to promote excessive robbing."

"I have the combs of honey, so I will be all right here. What about the three weeks later looking after, which you spoke about?"

"Three weeks after setting out, the hives are to be opened generally, for the first time, as no good can come in making a general opening when the weather is cold. At this opening we look after the queen, clip her wing, ascertain the amount of stores on hand, and reverse the brood-nest by placing the two center frames of brood on the outside, and the outside ones in the center."

"Do you think this pays?"

"I certainly do or I would not do it. A great gain is made by so doing, as all the older brood is in the central combs, which are generally filled to the outside of the frames, while only small patches of eggs and larvæ are in the outer ones. This reversion causes the now inside frames to be filled entirely with brood in the shortest space of time, while there is little danger of chilling the brood in this way."

"Well, I shall be tempted to try this on a few this next season, and see how near right you are."

"That is right. Go slow on any thing new to you, and in thus going you always go sure. At this time I also see to it that each colony has plenty of stores to last two or three weeks; for at no time should the bees feel that they must economize in stores, if brood-rearing is to go on rapidly, which it now must if we are to secure a good harvest of white honey from the clover bloom."

"I am well aware that a large amount of brood at the right time before the honey harvest insures a good surplus, and the securing of this brood at the right time has been one of the puzzling parts of apiculture to me. I think this talk will help me much. Tell me what further you do."

"In about ten days take one of your frames of honey which you say you have on hand, and, after breaking the sealing of the cells, insert it in the center of the brood-nest. In the removing of the honey from this comb the bees are greatly stimulated, and brood-rearing accelerated. In a few days more the brood-nest is again reversed; when, if all has worked well, there will be brood in all but the two outside combs, right along, and in these also in a few days more, owing to the full sheets of brood coming next to them."

"I had supposed from what I read that the spreading of brood was an awful job; but as you tell it there seems no more work to it than the feeding, equalizing, etc., given by others."

"When you get used to this way of working you will fall in love with it, if you are any thing like me. When the hive is full of brood the surplus arrangement is to be put on, and this generally brings us to the time of the honey-flow from white clover, and covers the ground you wanted covered."

"Thank you. I shall try something of what you have told me."

Editorial
By E. R. Root.

The Root Co.'s new moving-picture outfit showing bee-keeping operations in actual progress on the screen, together with a new set of stereopticon slides, will be exhibited at the various bee institutes and conventions in York State. See Convention Notices.

APICULTURE RECOGNIZED BY UNCLE SAM.

The reader's attention is directed especially to "Sidelights from the St. Louis Convention," p. 16. The experimental work that is already begun by the United States and by Texas, as well as some other States, is certainly a cause for rejoicing. The fact that Mr. Benton has been in the Department of Agriculture some thirteen years has led some to wonder that we have not heard more from him than we have. When it is understood that a good part of the time his labors were confined to *general* entomological work, we can understand why he could not devote more attention to our favorite pursuit, apiculture. But now that Uncle Sam has given it a *distinct* recognition by an appropriation of $5000, established an experimental apiary, and has four salaried employees who will devote their time exclusively to investigations and experimental work on bees, a new era has opened, and I think we may expect some important results.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION; TEXAS AS A BEE COUNTRY.

Following the address of General Manager France we listened to one by Mr. Louis Scholl, of College Station, Texas, who now occupies the position of Assistant Entomologist and Apiculturist at the station, and, naturally enough, he had been in position to gather facts and data of value to this convention in St. Louis. He said they had a State down there, a great big piece of land, and some of the apiaries were of pretty good size, not only in the number of colonies, but they grow big too.

From estimates arrived at from sources

secured in the State, Texas had something like 400,000 colonies of bees within her borders, and produced something like 5,000,000 lbs. of honey, or an average of only about 12 lbs. per colony, as there are so many small bee-keepers in the State. But even at that low average he thought that Texas was in the lead in the annual output of honey. But in this I believe he was mistaken. This 5,000,000 lbs. of honey in cars would make an aggregate of from 100 to 150 carloads. California will equal that in any of its years, and in a good year it will produce all of 500 carloads. But Texas, while it may not yet be in the lead, is quite likely to step clear to the forefront. Large in size, it has vast areas of honey-producing plants—plants that will never be used for any thing but forage for cattle and forage for bees. He would divide the State as follows: In Northern Texas—north of Fort Worth—there would be but very few bees, for cattle-raising was the principal business. In the eastern part there were very large pine forests and rice lands, and a good deal of basswood. But the trouble was, that that part of the State was not yet settled, and there were but very few bees to gather the honey. Central Texas was the great cotton belt where large quantities of cotton honey were produced, and some horsemint. Western Texas was a somewhat mountainous portion, and only some localities there produced honey like sumac. Southern Texas, below Houston, was a low swampy plain where grows the ratan that yields a large lot of honey but of poor quality.

THE BEE PARADISE OF TEXAS.

But Southwest Texas was a land of milk and honey—a locality that could not be surpassed anywhere in the world—where there was an almost unlimited amount of bee pasturage such as mesquite, guajilla, catclaw, and many other plants too numerous to mention. In this part of the country there were many good available bee locations, but they were too remote from railroads and civilization. One would have to push out in the woods and draw his crop to the railroads some fifty miles.

It is this country I visited myself some three or four years ago, and which I thought was the bee paradise of all America.

Regarding his experimental work at the college, Mr. Scholl stated that at College Station, Texas, there was an apiary of forty colonies with a bee-house, and a full equipment kept there for show and for the use of students, and to carry on experimental work. He thought it was the best experiment apiary in the United States. It was established in 1902, with an appropriation of $750 to start with. Later on the appropriation was increased, so that the station has been able to improve its facilities and usefulness. Many different kinds of plants for honey had been tested—as many as forty; but there were found only a few adapted to the conditions in Texas.

Mr. Scholl also said they had tested several races of bees; and when the results were fully collected they would be published. He outlined a number of experiments that he had in mind, and hoped to give the bee-keepers the result of them later on.

Following the address of Mr. Scholl was an exhaustive paper by Frank Benton, Apicultural Investigator of the Department of Agriculture, Washington, D. C., on the subject of—

WORK IN APICULTURE AT THE UNITED STATES DEPARTMENT OF AGRICULTURE.

He paid a glowing tribute to the late Dr. C. V. Riley, his old chief, who, although not a bee-keeper himself, was very much interested in the general subject of bees; and if some of his plans could have been carried into effect, apiculture at the Department might have been put forward several years. He quoted from the doctor's address made at the North American Bee-keepers' convention at Washington in 1892, in which Dr. Riley had said that some of the most beneficent and far-reaching work of the Department was done during its early history, when its means were limited, and when the field was fresh. Beginning about the first edition of Langstroth's celebrated work, or nearly a decade before a bee periodical had been printed in the English language, the Department reports from year to year gave some notice of progress in bee culture by publishing statistics of honey, and on several occasions excellent little treatises on bees and bee management. Probably but very few knew that the Department of Agriculture had any thing to do with the introduction of Italian bees into the United States. The fact was, the first successful importation of Italian bees from their native land to America was made by the Department, and it was almost wholly from this importation that such successful apiarists as Langstroth, Carey, and Quinby bred and disseminated the race during the early 60's. Dr. Riley, while not a successful bee-keeper, nor, in fact, could ever be classed as a bee-keeper, was very much interested in having apiculture recognized by Congress. It is not surprising that he was disposed to view favorably the establishing of an apicultural station in 1885 in connection with his entomological work in the Department. In this he was ably supported by Mr. N. W. McLain, an old-time friend and an enthusiastic bee-keeper. This was at a time when there was no special appropriation for apiculture, nor, indeed, any thing during the whole of Dr. Riley's administration; but in spite of this he had been instrumental in getting the station started, the funds being drawn from the general appropriation for the Division of Entomology, for he believed that he was fulfilling both the spirit and the letter of the law which authorized the expenditure of certain sums for the promotion of economic entomology.

At this point Mr. Benton, lest those familiar with what had been printed on the subject should call him to account for the foregoing, digressed to correct a mistake made by W. K. Morrison in GLEANINGS for

July 15, 1898, page 554, to the effect that he (Morrison) had been instrumental in procuring an appropriation of $5000 for the benefit of bee culture, and that Mr. Morrison himself was to be the first appointee. Nothing could be further from the facts. There was no appropriation of $5000 nor any other sum for bee culture at the time indicated—1885 to 1887; nor was there ever a special appropriation for apiculture previous to 1901, as he proceeded to show by tables taken from the records in the Department.

Notwithstanding the work of N. W. McLain had been criticised by bee-keepers and by the bee-papers at the time, Dr. Riley felt that a good deal of that work was valuable, especially the part relating to the experiments to test whether bees could be made to puncture sound fruit. The results showed that they could not do so, and have been since quoted very widely as authoritative. Following the work of Mr. McLain there was a lull in apicultural work; but in 1891 a series of experiments was conducted at the Michigan State Experiment Station, under the direction of Prof. A. J. Cook, assisted by John H. Larrabee. This was discontinued shortly after. In the mean time it had been Dr. Riley's desire to secure the giant bees of India; and he had already addressed a letter to the speaker, offering him a commission to proceed to India and secure those bees; but before the letter reached him he was back to his native land after an absence of eleven years. Owing to some technicalities, however, Dr. Riley was unable to secure the authorization to send to Mr. Benton, and he appears instead to have been employed in the general work of the Division of Entomology.

The untimely death of Dr. Riley somewhat changed the aspect of affairs, and it was only gradually that the importance of practical apicultural work could be sufficiently impressed on the authorities to result in a more liberal policy toward this industry. Meanwhile thousands of letters relating to apiculture had been answered by the speaker, and many thousands of bulletins had been sent out to all parts of the country. Teachers in the Normal College in the District of Columbia, and of the public schools of Washington, as well as teachers in nature study in other cities, have been furnished with information concerning bees for use in class work.

During the thirteen years Mr. Benton had been connected with the United States Department of Agriculture, he had never, he said, permitted to pass unutilized an opportunity to create in the minds of those in authority a favorable impression concerning the dignity of apiculture. All along he had noticed a growing interest in the Department; at last he had the satisfaction of seeing the matter duly appreciated, and proper steps taken to insure investigations which were so much needed. Prior to this time the title borne by himself was "Investigator in the Division of Entomology," and, later, "Assistant Entomologist." Finally, in 1901, there was set apart a special appropriation for apiculture of $2000, the first and only special appropriation which had been made for that branch. His own title was changed to that of "Apicultural Investigator," and his own salary, together with that of a temporary assistant for a few weeks on salary, was charged to this fund. This amount left only a small sum for investigation. He did the best he could, however, placing at the disposal of the Department his own bees, for experimental work. But in July, 1904, after a long effort and repeated representation to the authorities at the Department, and the legislators themselves, the "Division of Entomology" was raised to the rank of a "bureau," with what was practically a Division of Apiculture, with a definite sum of $5000 for apiculture. Mr. Benton was now allowed two assistants, each bearing the title of "Special Agent in Apiculture," and the other whose title was that of "Apicultural Clerk." He had been able to secure Mr. John M. Rankin, of Michigan, a trained student in experimental work in apiculture, for first assistant, and with whom the bee-keepers of the country were already well acquainted. The second assistant was Mr. Leslie Martin, of Tennessee, an enthusiastic student of apiculture, but one who had had several years of experience in practical work with bees. A civil-service examination had been held, and since the reading of Mr. Benton's paper I note with much pleasure that Miss Jessie E. Marks, the daughter of W. F. Marks, of Clifton Springs, N. Y., has secured the appointment.

Mr. Benton went on to say that an apiary of fifty colonies had been located at Arlington Experimental Farm, on the Virginia side of the Potomac, directly across from the Department grounds. The location was ideal for testing new races of bees and their crosses with other races. Numbers of queens of valuable races were already being imported and tested. These included the gentle Caucasian bees from the shores of the Black and Caspian Seas in Russia; Cyprians from Cyprus; Dalmatians from Dalmatia, Austria; Italians from the foothills of the Alps; and, lastly, Carniolans from Austria. Nor were the giant bees of India and of the Philippines to be overlooked.

In closing he desired to express his high regard for the present Chief of the Bureau of Entomology, Dr. L. O. Howard. No man was more widely known among the galaxy of distinguished scientists whose homes were in the capital city, and no one was more highly esteemed. Like Dr. Riley, not a bee-keeper, he had come in the course of the years in which he had been associated with Mr. Benton to know something of the status of this industry.

This paper was listened to with much interest, for it gave a detailed report of the work of the Department, especially a report of the work that was being done and had been accomplished by the Apicultural Investigator, Mr. Frank Benton.

GENERAL
CORRESPONDENCE.

DE LUXE COMB HONEY; A NOVEL METHOD OF PUTTING UP COMB HONEY.

How the Russian Bee-keepers have been Getting Fancy Prices for all their Comb Honey.

BY A. E. TITOFF.

[Shortly after the St. Louis convention Mr. A. E. Titoff, who, it will be remembered, is studying bee culture at Medina, showed me some very pretty tin boxes magnificently decorated in colors lithographed right on the metal. These, he explained, he intended to exhibit at the big convention just mentioned, but unfortunately they came just too late. He added that nearly all of the Fancy comb honey sold in his country, Russia, was packed in these tin boxes denominated "Exquisite," which might appropriately be termed in the language of the book-maker, "*De Luxe.*" There is no tin package in the United States for comb honey or any thing else that approaches it in its magnificent display of colors. The fact that comb honey put up in them brings almost fabulous prices in Russia ought to command at least some slight attention from the American bee-keeper. I became interested, had some engravings made, and in the meantime asked him to prepare an article, which he has done.—ED.]

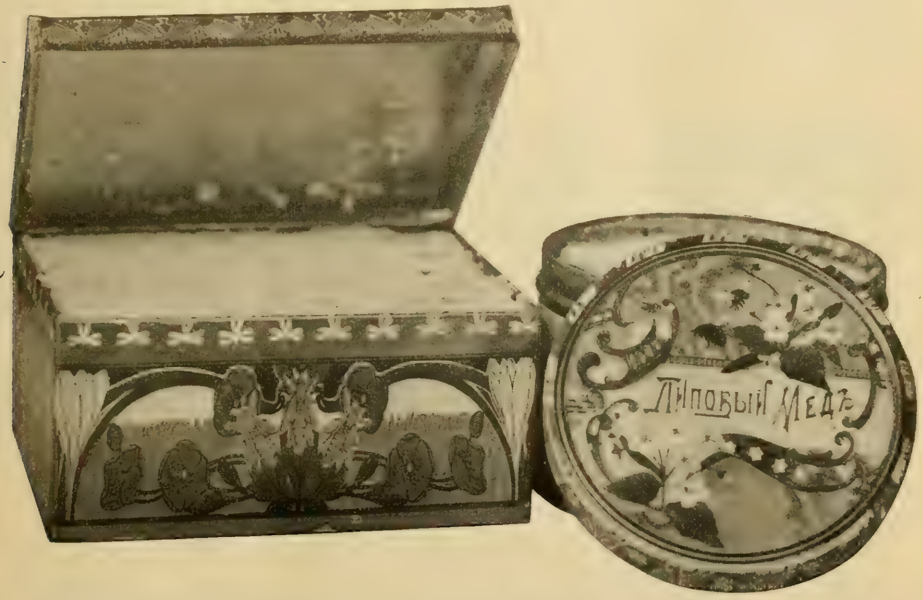


FIG. 1.—COMB HONEY PUT UP IN DE LUXE TIN BOXES, AS IT IS SOLD IN RUSSIA; BOXES OPEN.

In the present article I intend to acquaint the bee-keepers of the United States with the method used in Russia of putting up honey for sale, that I have never seen practiced in this country, but which I believe deserves most serious attention if not adoption in the United States.

Some years ago there appeared in the Russian market comb honey packed in tin boxes, weighing from one to five pounds. Such boxes are now made specially for the sale of honey; they are lithographed in several colors, showing views of apiaries, landscapes, and bearing also inscriptions, such as the brand of honey or addresses of bee-keepers. They are called "Exquisite" because they represent the finest of the market, bringing fancy prices when filled with honey. The boxes are one comb deep and are liquid-tight, so that all drip that may ooze from the combs cut to a size to fit will be taken care of. This manner of packing honey has spread more and more, until today it may be found throughout the breadth of the empire.

In order to demonstrate the appearance of these boxes there are here shown some half-tones made from photographs of samples sent from Russia. Fig. 1 represents open boxes filled with honey, the lid of the round box bearing the inscription: "Basswood Honey." Fig. 2 shows the boxes closed, the round box being inscribed: "Aromatic Basswood Honey." On Fig. 3 is seen the upper surface of the lid belonging to the square box. It represents a pretty meadow with bees flitting from flower to flower. Here the inscription reads, "Pure Aromatic Bee Comb Honey."

Our Russian bee-keepers do not produce much honey in sections, considering it less profitable, and preferring to let the bees build up combs in the ordinary extracting-frames. When the honey is well sealed it is cut out and packed in boxes.

I anticipate that the words "cut out" and "packed" might impress some persons as describing laborious, troublesome, and tedious processes. In reality, however, they are extremely simple. Special tools are made for this purpose, cutters made to suit the size of the box. One downward stroke causes them to cut the comb on four sides simultaneously to the exact right size, and a special appliance permits it to place it in the box neatly. It is somewhat similar to the process of making cakes by means of a "cooky-cutter," which is universally adopted by the ladies, and as fast in operation. This method even permits of honey being taken from log hives; and if the comb is nice, and honey of good quality, it can be packed in the boxes and sold the same as that from movable-frame hives.

In considering the practical side of the subject, the following questions might arise: What would be the cost of this packing, and is it profitable? With regard to the expense I may say that the cost of these fancy-colored boxes in Russia, bought direct from the manufacturers, would be in American money about four cents per pound.

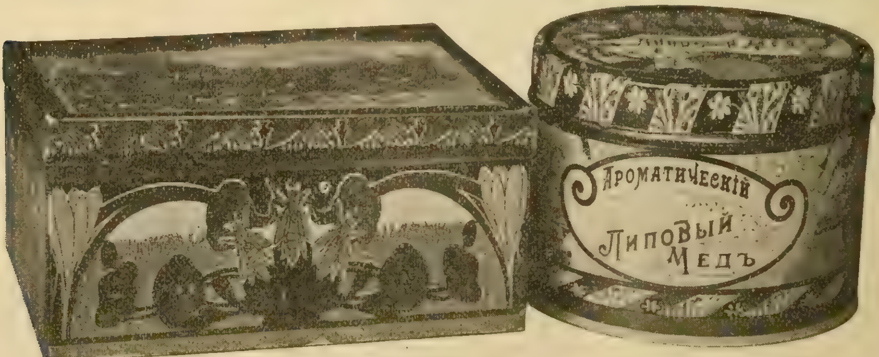


FIG. 2.—COMB HONEY PUT UP IN DE LUXE TIN BOXES. BOXES CLOSED.

Granting that the packing of honey in such boxes would come as high as four cents on the average, and that in comparison with the cost of the sections this process is much more expensive, still this is far from saying that it would not be profitable to adopt this style of packing. Is it not found profitable to put up honey in glass jars, which means an expense of 3 or 4 cents per pound, or about 20 or 25 per cent of the cost of the product? Then again in, discussing the question from the standpoint of profit the subject should be looked into more thoroughly. Here one must take into account the very process of producing comb honey. I do not think any reader will assert that the bees work as fast in sections as they do in large frames. The principal reason of this is to be found in the hundreds of partitions with which Americans relentlessly fill their supers, which considerably enhance the labor of bees in the building-up of the combs. My observations in this respect have always shown that if nine half-depth frames are inserted into the supers of a ten-frame beehive, they are built up and filled much faster than if there had been 32 sections. In the first instance about 45 lbs. of fancy honey are obtained; in the second case not more than 32 lbs. of the same quality, while a part of the sections become No. 2, and thus further decreasing the yield and profit. Every one knows well that the bees in supers begin first to work on the middle frames over the center of the brood-nest, and that often when the middle frames are fully built up the outside ones are but half built out. Thus there is a possibility of taking the honey from the middle frames rather early, before there is a quantity of new honey offered in the market. Then it may be sold at a higher price. Here I beg to call your attention to another fact: As I said before, the bees begin to work and to fill the frames from the center of the nest. The capping over proceeds in the same fashion. Those sides of the frames which are located toward the center are sealed somewhat earlier than those disposed laterally in the supers. Occasionally the yield suddenly ceases; the consequence being that one side of the comb sometimes remains not entirely sealed. In packing such comb honey in tin boxes this does not present any difficulty to the bee-keeper, there being no necessity to wait until the comb is perfectly capped. These one-sided combs can be packed in the box in such manner that the fully sealed side of the same will face upward while the sides with the incompletely sealed cells are turned down. In suggesting this I have not the least intention of practicing any deception on the buying public, but to show that this method of putting up comb honey permits of all combs, providing the flavor is good, being sold as first quality, and at the best price.

Being interested in the condition of the honey business in this country I was permitted to work for some time in the honey department of The A. I. Root Co. Thanks to the kindness of Mr. J. A. Warren, manager of this department, I had opportunity to acquaint myself intimately with the grading of comb honey, having graded tens of thousands of sections with my own hands. During this time I came face to face with facts such as confront every producer of comb honey. Let us take two sections of honey of the same quality. One is perfectly sealed on both sides, and is laid aside as Fancy honey while the other is perfectly sealed on one side and is perfect, though a few cells on the other side are not perfectly capped or are slightly injured, perhaps scratched. Now this section containing just as good honey as the other must be sold as No. 2, and at a corresponding reduction in price. I really think that such combs might be packed in the Russian tin boxes with clear conscience with the somewhat injured side down and sold as Fancy honey. Are you not personally fully satisfied that the honey is pure and identical in quality with the other, the only difference being in the fact that its appearance is not exactly the same? Of course, if such combs turn out to be light in weight, some extracted honey must be poured into the bottom of the box or some honeycomb cells inserted.

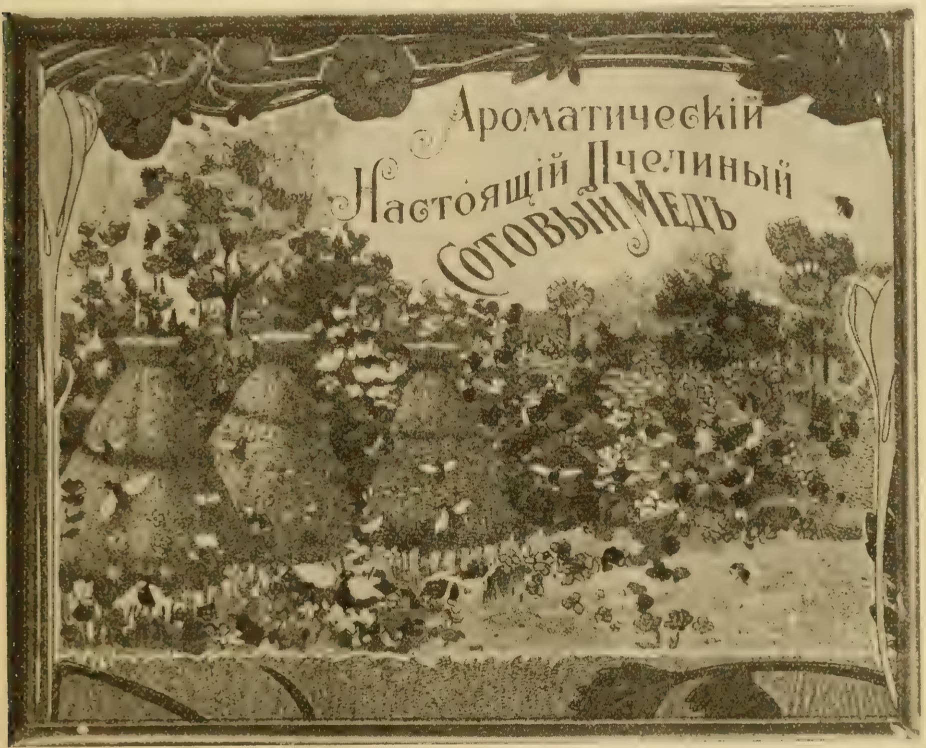


FIG. 3.—COVER DESIGN, FULL SIZE OF SQUARE TIN BOX.

When the season is good, comb honey in sections does very well. But let us look at the other side of this matter. Let us assume an unpropitious summer, bad weather, and poor yield. Your bees may have half filled the sections and ended their labors. What can be done with the sections in such a season? This question is frequently asked in the columns of apicultural papers. How can they be preserved without spoiling the quality of honey? And what amount of trouble and what bitter disappointment you encounter when it has to be put through the extractor! In such cases large frames would be much better to manage.

Thus recognizing the superiority of the production of honey in large frames over the production of it in sections, we have a thorough warranty to justify fully the assumption that the cost of the boxes will more than repay itself. You must add to this the saving in not requiring sections, separators, or fences.

With regard to the packing of such boxes for shipment, this method is still more convenient than shipping in sections. Because of the regular form of the boxes they are easily packed in cases, take up little space; breakage and leakage are done away with, something that is to be feared in shipping sections.

To be exact, I may add that Russian beekeepers use also plain unlithographed boxes, having plain labels on the outside. Of course, they do not look as pretty as the others. Cardboard boxes inlaid with wax paper are also used, but they are not reliable for shipping.

I must now consider the last point, namely, the sale of honey. I am well aware of the fact that the bee-keepers of the United States worry over the disposal of their product. It seems that not all succeed in selling their honey easily, rapidly, and advantageously. What are the reasons for this? Certainly not overproduction. This does not exist in any country under the sun, and surely not in this country. There are hundreds of thousands, nay, almost millions of families, which are totally unacquainted with the taste of honey; others may know it, but have had it presented to them in such a shape that they prefer corn syrup. The duty of acquainting the population of all classes with the products of our apiaries is incumbent upon the bee-keepers themselves. It is their duty to show that honey is extremely wholesome and useful. It is the duty of bee-keepers to teach families to consider honey not merely in the light of a dainty, but as a necessary article of food. One of the principal requirements for the booming of any article is the presentation of it to the consumer in good quality and the most attractive form. Honey is no exception to this rule. Probably the principal part in the popularization of honey must be played by those bee-keepers or retail dealers who peddle the honey from house to house. The success of these people depends upon their own ability and cleverness. In order to obtain a large circle of customers they must not only give a half-way decent, but a very attractive appearance to their wares. I remember what a Russian bee-keeper said on the subject: "What's the use," he said, "of going fishing without bait? Not a sucker will catch on to a bare hook for his particular pleasure any more than he would walk ashore and jump into the frying-pan." Mr. Smith was perfectly right in his remarks made in the *Bee-keeper's Review*, when he said:

> Don't ask them if they "want to buy some honey." Of course they don't until *you make them* want what you have, and then they will buy without asking.

Honey packed in such attractive boxes will prove a sufficient bait for the buyer, and may be its own inducement for him to purchase it.

It is to be regretted that the illustrations can not convey an adequate idea of the striking appearance and the richness of coloring of the boxes in reality, for they are really beautiful articles, and the best confectioners and stores in the Russian capitals are not above carrying them. These boxes are as convenient as they are pretty. They may be properly served on the table without removing the honey. If their contents have been only partly used, the remainder may be very conveniently set aside for future use, the boxes being provided with hinged lids, which may be easily opened or closed. Neither dust nor the bothersome flies can get at them. Honey in this shape makes a nice present for children, or adult friends and relatives. It may be easily taken along on a trip or for picnics, where it is bound to be an attractive ornament of the improvised table.

In conclusion I would say that what I have written was not with the object of filling up space in this journal. I desire that this method of producing and packing honey be adopted. The fact that the suggestion comes from Russia will do no harm. I am sure that you will approve it, once you have tried it.

[This method of putting up comb honey has much to recommend it, and could it once get a foothold in this country it might help the bee-keeper who has difficulty in producing a Fancy or No. 1 comb honey to get a fancy price for his product put up in this form. At all events it strikes me as being the best solution of the chunk-honey problem. It would have all its advantages with none of the bad features. The rapidly increasing scarcity of basswood for sections may in time force us to adopt something of this kind.—ED.]

QUEENS MATING MORE THAN ONCE.

Evidence that They Do; Overstocking; Priority Rights to Location; Baby Nuclei—a Caution Concerning.

BY J. E. CHAMBERS.

In GLEANINGS during the past year I have noted many things of uncommon interest to me. As a specialist I have been more interested, perhaps, than some who keep bees only as a side issue. Nevertheless, I am persuaded that the subjects under the above heading possess an abiding interest to many besides myself. This belief has induced me to undertake the task of telling the results of my own observations, along with other things as they appear to my mind. For quite a long time after reading the articles of Prof. Benton and others regarding the second mating of queens, I had my doubts, thinking that perhaps a mistake had been made in some or all of the observations mentioned. However, within the last month some things have come under my notice that incline me to change my opinion very materially, and to place no manner of doubt on the assertion that they do sometimes, at least, mate more than once. It is true that, in this particular case, I did not note any indication of a second mating; but I did observe two succeeding flights of at least ten minutes' duration, and I am seriously of the opinion that she did not fly out these two last times for an airing, nor for wing exercise. The circumstances connected with these observations were such that all my faculties were under requisition, and I know positively that no mistake was possible.

On the 25th of last September I sold a friend a very fine and promising young Carniolan breeder—such a queen as I had never seen before, and bees the gentlest I have known. Being desirous of saving some of her stock I fed her colony very liberally during the time of cell-building; and when the cells were ready to hatch I distributed them among nuclei except one left in the parent hive. Drones being scarce in my home yard, I secured about 100 fine big fellows, all hand-picked from an outyard. These I gave to queenless bees that were being fed nightly. I now fully expected to secure a good number of choice matings; but if any mated except the queen in the old hive I am sure I never knew it; yet my observations were very close. However, on the fifth day after hatching, this queen flew out, and, on returning, brought the drone organ with her. When she had gone into the hive, and the bees were somewhat quieted, I opened the hive and found the male organ still remaining, but protruding considerably from the vagina, which convinced me that it was no false contact but a true connection. I now felt that I had one of these choice queens safely mated; but imagine my surprise the next day, when, standing by this same hive, quite by accident as it were, to see this identical queen emerge from the hive and fly directly away, returning in about ten minutes, with no signs of having met a drone. I now had my curiosity fully aroused, and proceeded to watch for her on the succeeding day, and, lo! she appeared again and flew out, but returned the same as before. After that she flew no more, though a strict watch was kept for some days in order to determine this fact. I fully expected to see her deposit a few eggs in the center of the brood-nest, especially as the bees seemed to have prepared quite a large space for her, polishing the cells and refusing to store any honey in them; but up to the present time, seven days after mating, there is no sign of eggs in any part of the combs, and the queen has shown no increase in size; she also maintains all the excitable shy appearance common to virgins. I fully believe this mating failed to do the work of fecundation, and, while still under the unsatisfied sexual impulse, she flew out a second and a third time, failing to meet a drone on these trips solely on account of their great scarcity; but after the second failure the impulse to mate wore off, and of course she did not go out after that. This colony is in good condition, and will winter, I am sure, and will be under the closest observation next spring in order to see what the final result will be. If she should fail to lay in the spring, which I fully expect, or if she should prove to be a drone-layer, it would confirm my belief that, in order to be fully effective, the sexual organ of the drone must be absorbed into the body of the queen. On the other hand, if she should prove to be all right it would go far to establish the belief that a queen might mate several times, either of which matings might or might not be effective.

The fact that men of high intelligence are willing to go on record as declaring that overstocking is a thing not to be feared is, to say the least, astonishing. I have for several years been in a most favorable position to learn something about this question. For three years past I have established one new yard each year, taking from 25 to 40 old colonies to start with. These new yards have never contained more than 60 colonies during the first season, and, without exception, have always yielded a third more profit than any of the old established apiaries. The present year, though a very hard one, well illustrates this fact. One of these new apiaries had only 40 colonies in it, and none of them of more than moderate strength; yet the yield was nearly 70 lbs. per colony, while those in larger apiaries, and four miles away, did not average 20 lbs. The forage was the same in both places. Closely observing both yards it was readily apparent that the weaker colonies, in the new yard, were working much the stronger force, and continued to do so for a greater number of hours each day, up to the last day of the flow. From the time the first bees began to go out in the morning until they were returning in good force did not exceed five minutes, and this was kept up throughout the day in the large yards. The first bees returned in an equally short time; but inside of two hours the working force showed a big weakening, and by two o'clock in the afternoon they had almost quit work for the day, while those in the smaller yards continued with almost the same force until night put an end to their labors. This fully satisfied me that lack of nectar to gather was the cause of this suspension of bee labor. I am also satisfied that the larger force of bees, in the big yards, was compelled to work over the flowers many times, and that this increased the length of time necessary to make a trip, and, of course, diminished the yield; whereas those in smaller yards never had to work the same bloom twice, and, of course, could get honey for a greater length of time each day. This condition would not be so noticeable in good years; yet if the field were sufficiently overstocked I am sure it would make itself felt. But the danger from this source is not so much to be dreaded in good years, when some surplus may be had, even at the very worst; but in poor years it might make feeding for winter stores a necessity. I don't know how others regard it; but with me it is a real and decidedly apparent factor.

Priority rights in regard to location is, to my mind, a real and menacing question for the specialist; and if it can not be settled satisfactorily, the occupation of the bee-keeping specialist in many localities is as good as gone; but if it can be settled in a way to protect those who are depending on bee-keeping for a living, then it will tend to place the pursuit on a higher plane and on more solid ground. What hope or what prospect is there for a man with ability, energy, and patient perseverance, all of which are requisite in successful bee-keeping, to start apiaries and work for years to build up a trade, only to wake up some morning and find the work of his life broken into by some Jack of all trades? To my mind there is nothing more hurtful than the arguments advanced by some writers in defense of this species of brigandage. I think our associations should take some action on the question, and, by severely condemning the practice of encroaching on the territory of those who are already established, set a moral example and a precedent.

Another thing I wish especially to speak of is the mating of queens in the so-called baby nuclei. I myself have mated them in small nuclei like those spoken of, but they require a good deal of watching, and more skill than the larger nuclei, and the young queens can not be kept for a considerable time without special care. I find it absolutely necessary to keep queens on hand at any time ready to replace a played-out or poor queen with, and I think most bee-keepers find it profitable to do likewise. For this class of bee-keepers the baby is not of much value, and I am sure it is a mistake to recommend it to any but those who possess considerable skill in handling and rearing queens—not that it can not be used to good advantage by the large bee-keeper who has the requisite patience and skill; but a great many, indeed, can not hope to succeed *with* it, and it is not right to urge this class to waste time and money with it. I should not have mentioned this, but I feel sure, from the prominence given it of late, that a good many will be induced to try it; and you know as well as I do, or even better, that, in many cases, failure is assured, and at best it is of doubtful value to the honey-producer who has no great skill in queen breeding and mating.

OBJECTIONS TO A BROOD-NEST TOO SHALLOW.

Another thing I wish to call your attention to. In your footnote to my article in the July 1st issue of GLEANINGS you say if two bodies are used it would obviate some of the objections; but you fail to state what, in your opinion, the objections are. However, I presume that you imagine the queen would lay in the sections, and that pollen would be stored there, and, being too small for a brood-nest, would cause dwindling of the working force; and, indeed, this would be the case if a good many of the fellows who write had to manipulate the colony, both before and after its preparation for comb-honey work; but in my whole experience and practice it has never been the case, even once. There might be something in locality in this respect, but I doubt it. I think there is more in the man and his way of doing things. However, I can not explain in this article.

Vigo, Texas.

[If overstocking has been seriously advocated in these columns, without a protest, I did not know it or had overlooked it. I have frequently said that, in many localities I had visited, too many bees were plainly responsible for cutting down the honey-yields to an extent that was almost alarming. As I said to friend Doolittle in our issue for Dec. 1, such references ought to be accompanied by the page and issue of the journal in order that we may see exactly what is said.

It may be that a caution is needed in regard to the use of baby nuclei for keeping queens. Our use of them has been confined entirely to the matter of having them mated. As soon as they were surely laying they were taken and another virgin would be given them. We have never tried them for keeping queens for any great length of time.

Regarding the use of two shallow brood-nests, you in your last paragraph have anticipated the objections I had in mind. In some localities, and particularly with some bee-keepers, the pollen difficulty is a serious one. Even Dr. Miller has complained that a brood-nest as deep as the present Danzenbaker caused pollen to be forced up into the sections.—ED.]

THE WINGS OF THE BEE.

I.—The Evolution of the Venation.

BY E. F. PHILLIPS, PH.D.

Careful students of insect life have recognized that the veins of the wings of various insects resemble each other; and numerous efforts have been made to refer the wings of all orders back to a hypothetical type. According to the theory of evolution, all forms of insects have probably descended from one species; and the effort has been made to discover, if possible, what the wings of this primitive form were, so that we can more nearly discover the relationships existing between the forms living to-day. There are certain features in the venation of the wings of insects which occur in all the more generalized species, so that we are warranted in regarding them as typical of all insect wings, and therefore probably inherited from the hypothetical ancestors of the insects now living. Veins of the wings are of special interest to the entomologist, since they are useful in so many cases in identifying species; and for this reason the veins have been much studied. It is scarcely necessary to add that we shall probably never know very much about the ancestors of insects; but any evidence which can be found by comparing the forms now living are of great value in studying new forms.

Comstock and Needham, in the *American Naturalist* for 1898, in a very excellent series of articles discuss the relationships of the venations of the different insect orders; and to these articles the reader is referred for additional information. I can at this time present only the changes which have taken place in the evolution of the wing of the bee from the typical form.

The typical insect wing is supported by the following veins, beginning at the anterior edge: Costa, *C;* sub-costa, *Sc;* radius, *R;* media, *M;* cubitus, *Cu;* and several anal veins, *A*. These are often branched, the branches being numbered in order; thus, the first branch of the vein radius being known as radius-one, R_1. The space between veins is known as a *cell*, and is named from the vein which forms its front margin; thus, the space just behind the vein radius-one is known as the cell R_1. Numerous cross-veins are found which are represented by small letters; thus, the cross-vein connecting *R* and *M* is the radio-medial (*r-m*).

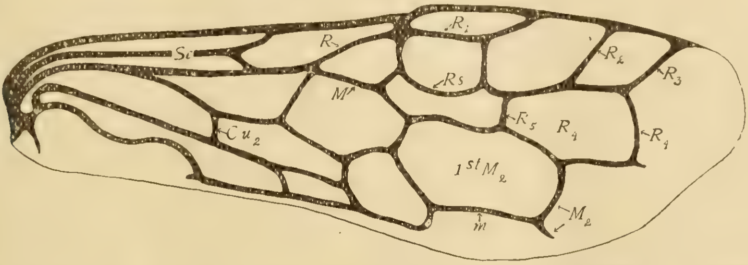


FIG. 1.—THE WING OF A TYPICAL HYMENOPTEROUS INSECT, ACCORDING TO COMSTOCK AND NEEDHAM.

Fig. 1 represents the wing of the typical insect belonging to the *Hymenoptera* (the order to which the bee belongs). No species of insect has a wing just like this; but a study of many species has indicated that the ancestral form had a wing of this kind. The saw-flies come nearest to the type in this order. To follow out all the changes which have taken place in the formation of this wing would require considerable space, so that we must omit the discussion here.

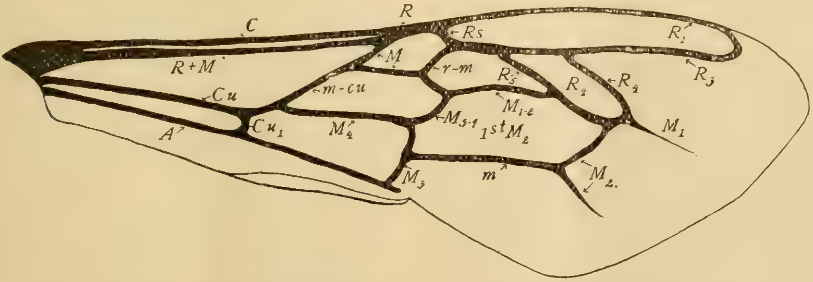


FIG. 2.—THE FORE WING OF THE HONEY-BEE WITH THE MAIN VEINS AND CELLS LABELED.

Fig. 2 represents the fore wing of the honey-bee with most of the veins and cells marked. In the evolution of this wing three veins have been entirely lost—the sub-costal (*Sc*), radius-two (R_2), and cubitus-two (Cu_2). In examining over one thousand wings, no cases were found in which any of these veins were present. The angles of the branches of the radius vein are also changed considerably. The veins *R* and *M* coalesce, and lie very near to the vein *C*, forming a rigid anterior edge. There is here also but one anal vein.

In the case of the bee we get a remarkable case of adaptation to environment in the way in which the wings are placed in repose. The flies have but one pair of wings, of such a width that they support the weight of the insect in flight. Had the bee wings of this type they would need to be about $\frac{2}{5}$ of an inch from point to point when at rest, and this would have prevented its entrance to its own cell. We frequently see bees at the entrance with the wings held like the wings of a fly. The special adaptation of the wings like those of the bee is the row of hooks, or hamuli, which are located on the anterior edge of the hind wing. When the wings are adjusted for flight these hooks fit into a fold in the fore wing called the *plait*, and the insect has then practically a single wing surface on each side of the body. This gives much more power and regularity to the flight of the bee than would be obtained if the two pairs of wings acted independently. The number of these hooks is from 16 to 27, the average for drones being slightly higher than for workers, and the variation in number being far greater for drones.

When at rest the wings overlap and lie close to the body. In the wasps the wings at rest are confined to a still smaller space by being folded lengthwise.

Philadelphia, Pa.

JUDGING HONEY AT FAIRS.

Criticisms on Some Queer Judging.

BY A SUBSCRIBER.

Recently I was at a fair and watched the judging of the honey exhibits, but was not myself a competitor. The judge was a very careful and impartial man, and he went over the exhibits very carefully several times before giving the awards. So far as I could observe, the honey was judged almost entirely by its flavor, although the aroma received some consideration, and the appearance also was noted. This refers to extracted honey.

When the judge came to the comb honey I was almost knocked down with astonishment to see him break holes in beautiful white sections in order to taste their contents. The appearance of the exhibits was thus entirely ruined. According to my own ideas, comb honey should be judged by appearance only. The wholesale purchaser and the consumer, both of them, pay for the article according to its appearance. The best-filled sections, and those with the whitest cappings, are the ones that command the highest price, no matter who it is that is buying. A purchaser of comb honey does not ask to be allowed to taste the article, and he would not be allowed to do so, even if he did ask; therefore is it not reasonable that it should be judged according to the way in which it is sold, and be judged by its appearance only?

If I were judging I would give most points to smooth, well-filled combs. Such sections, with no pop-holes—well filled solid to the wood, and every cell sealed—would be placed above those which might be a little whiter in color, yet having a few cells not sealed over.

I would place the whiteness of the cappings second, and the cleanness and whiteness of the section itself third. Flavor I would not consider at all. We must remember that it is necessary to please the eye first, if we would draw from the pocket of a consumer. These conclusions are borne out by the grading-rules you publish in each issue of this paper. I can not help saying again that it seems to me a very strange proceeding to break open a section and judge by its contents.

As regards judging extracted honey, I would put appearance first, flavor second, density and weight third, and aroma fourth. A purchaser in a store would take a bottle of clear white honey in preference to a dark-colored one. The lighter the color, the more attractive to the eye; and, as before mentioned, it is generally the eye that controls the pocket. This is also proved by the market quotations you publish. I copy the following from the last number of GLEANINGS I have received:

BUFFALO.—Fancy white comb, 14 @ 15; A No. 1, 13 @ 14; No. 1, 12 @ 13; No. 2, 11 @ 12; No. 3, 10 @ 11; No. 1 dark, 11 @ 12; No. 2 dark, 10 @ 12. Fancy white extracted, 6½ @ 7 : amber, 5½ @ 6; dark, 5 @ 5½.

The above proves my claims. Very few retail purchasers would ask to taste even the extracted honey, and fewer still would be gratified.

As regards the third point, all bee-keepers agree that a heavy-bodied well-ripened honey is the best. I might almost say the heavier weight would be given preference to a lighter-colored honey that is lighter in weight; and all agree that thin unripe honey should not be placed on the market at all. The aroma is the last thing a buyer would think about.

Another feature about this fair that I noticed was that there were no samples of granulated honey exhibited. There were only two classes—extracted honey and comb honey. This year the exhibits were all liquid, but other years I have seen samples of both liquid and granulated honey competing in the same class.

Now, for my part I do not see how it would be possible for any man to judge both together. I have in my possession at the present moment some granulated honey as hard and solid as any cheese. It is now, in the crystallized state, as white as any sugar; yet when it was in a liquid condition it was very dark and cloudy. How, then, could this be judged with the liquid article? There are three very good reasons why I should not be expected to reduce this honey again to a liquid state. First, because the necessary heating would injure it more or less in color, flavor, and aroma; second, because most people prefer honey in the crystallized or granulated condition; third, because granulation is an absolute proof of purity.

I intend, therefore, to request the committee to place these classes of honey on their next program, to read thus:

Class No. ——, comb honey in sections.
Class No. ——, extracted honey, liquid.
Class No. ——, extracted honey, granu'ed.

The judge referred to above is a grocer by trade. He is a thoroughly honest, impartial man, and, without doubt, an experienced taster. At the same time, however, he knows nothing whatever about how honey is produced, nor any of the fine points on which bee-keepers place the most value. Would it not be more satisfactory to exhibitors if a judge could be obtained who has had several years' experience as a modern bee-keeper?

Fernhill, Napier, N. Z., Oct. 30, 1904.

[I don't know much about judging honey, but so far as I can see your points are all very well taken. It may be permissible, if a judge desires it, to taste comb honey from the same super, but he should not mutilate those perfect sections on exhibition, especially if the exhibit is to stand after the premiums are awarded.—Ed.]

THE DANZENBAKER HIVE FOR THE PRODUCTION OF HONEY.

Should the Brood-nest be Crowded with Brood? Some Comments on a Recent Article by Mr. Doolittle.

BY WM. A. STEWART.

Mr. Root:—I have often thought of writing you something of our experience with the Danzenbaker hive; and after reading Mr. Doolittle's letter in the Oct. 1st issue I decided to do so, for I think your readers have not been fully informed as to its merits.

Mr. Doolittle says, page 925, "The brood-combs are manipulated till the whole are solid full of brood; and when in this shape, if any honey is stored it must go into the sections." Now, I do not want the brood-combs *quite* in that shape, for four reasons:

1. The manipulation above referred to takes time from the bees as well as from the bee-keeper.

2. I want a little unsealed honey in the frames—enough for the brood for a day or two at least, so the young or nurse bees will not have to go into the supers for it, where, in some cases, they would have to climb up over nearly finished sections to reach the fresh honey above.

3. With the best queens obtainable, there will always be a difference in the capacity of individuals, and I want more room so that an extra good one will never be crowded.

4. With the brood-combs solid full of brood (I suppose he meant to include the usual supply of pollen), what is to become of the *extra* supply of pollen which the bees often gather right in the height of the season? Will it not go into the sections also, or, more likely, crowd the queen into a still smaller space? Granted that it may all be needed later, we must have room for it when it comes. For these reasons I want no contraction of the brood-nest during the honey-flow.

Perhaps you would say that a beginner of two years' experience should hardly speak on matters like this, after Mr. Doolittle has spoken. No one feels that more than I; but I want to say that another experienced bee-keeper, one who seldom speaks for himself, has a plan which suits me better, because it accomplishes the same purpose without these objections.

Mr. Danzenbaker's plan was to make a hive neither large nor small, but of the ordinary size, and of such shape that the natural place for the honey is in the supers, so that the bees will incline to put it there without being forced to do so, leaving the queen plenty of room, with food supplies for the brood right at hand. I want to emphasize the fact as we find it, that *he did what he started out to do.* In fact, it is a matter of practical experience with us that he builded better than he has ever dared to claim. I find no need to tier up the hives with second hive-bodies, except where increase is wanted. I just put on the super with full sheets as soon as the bees begin to carry honey faster than they use it, about the beginning of apple-bloom, and add more supers on top as they are needed. The bees and the hive do the rest.

In the two last seasons my sister and I have secured an average of comb honey per colony nearly equal to Mr. Doolittle's record, and have increased from 5 colonies in the spring of 1903 to 22 now, and have had but three natural swarms, all of them due to overcrowding. I expect to find swarming entirely avoidable; but please bear in mind, after Dr. Miller's experience, that I have no non-swarming race.

Just one more point for the hive. We have a good honey-flow, but a climate so changeable and uncertain that such methods as the brushed swarm—well, anybody may try it who wants to. This county, with no cities and but two large towns, does not nearly produce its own supply of honey, and they don't eat it on the Texas plan either. Let the out-apiary men come; but let them come warned, for they will wish some wet morning that they had shaken themselves instead of their bees. Well, with the Danzenbaker hive I find it perfectly practicable to keep the bees ready for a honey-flow or ready for a famine from the beginning of apple-bloom until the end of buckwheat-bloom in September. Even our nuclei are kept with a supply of honey in their frames, and we can make two from a strong colony without seriously decreasing its yield of honey.

Allow me to add that we have had some of our best points on bee-keeping from Mr. Doolittle, and nearly all of them from your publications.

Elkin, Pa., Oct. 6, 1904.

HOW I MANAGE SWARMING WITH THE QUEEN-TRAP.

BY C. H. DIBBERN.

Having established an out-apiary some twelve years ago, and being short of help, I found the swarming business a pretty serious problem. I studied all known methods to prevent or control swarming, including the now popular method of clipping the queen's wings and making swarms by the shake or brush systems. These, however, soon proved unsatisfactory to me, and my first experience with the Alley trap, drone and queen guards, and various so-called self-hivers in the end proved equally unsatisfactory. But from the experience I had, I felt sure that the trap, when improved, was the best way to manage swarming, especially at an out-apiary where but one or two visits a week could be made. I made three or four different traps, but soon discarded all but the one on page 806; and after having had it in constant use for over ten years I do not see how any thing better could be desired.

About the time swarms begin to issue I go through the apiary when the bees are busy, and place a trap on every hive liable to swarm. This I determine from the way the bees are acting, and seldom make a mistake; but with plenty of traps one can be put on every hive. The bees soon become used to them, and I never could see that it made any difference in the amount of honey gathered. In two days there will be a good many drones in the traps, and these I shake out into a box, always keeping a lookout for queens. Should a queen be found, then probably a swarm has issued and returned unseen, or the bees are superseding their queen. In either case the hive should be opend, and actual conditions ascertained. If it is found the bees had attempted swarming, the swarm can be shaken out, giving it the trapped queen. In an out-apiary, usually a glance at the hives will show by clusters of bees on the upper corners of the trap, just where swarms have issued. If one is present it is a very easy matter to hive the swarm. All that is necessary is to see that the queen is in the trap, which can easily be done if the new Tinker zinc is used. Set the new hive in the place where the old one stood; attach the trap and open the back door so the queen can run in with the bees when the swarm returns. Usually the bees will miss their queen in ten or fifteen minutes; but I have known them to settle on a tree and stay for hours. Generally one can be certain that no queen is present if they cluster on a tree, by that nervous movement among them, and by seeing a few bees flying around under the trees, as if hunting for something. After the bees are hived I leave the trap on the new hive for two or three days, to prevent desertion. Sometimes swarms will come out after being hived a day or two, and start for the woods. It is a great satisfaction to see them humbly returning in a short time.

I am well aware that most of this is no news to the experienced apiarist; but to the beginner and farmer bee-keeper it ought to be of value. When I read last year of the thousands of swarms roaming over the country I thought how easily this great loss could have been prevented with the new queen-trap. This is by no means all the use I make of the trap, and I will have something more to say in a future article.

Milan, Ill.

LIZARDS AND BEES.

The Small Lizards Friends and Not Enemies; Some Noxious Spiders in California; an Interesting Nature Study.

BY C. W. DAYTON.

The lizard described on page 658 as "at least a foot long" is an entirely different kind of reptile from the one referred to in your footnote as being "very tame," or the one that "would rather watch the apiarist," mentioned on page 981. The lizard "a foot long" does not possess either of these traits. When this lizard sees a person it gets out of sight as soon as possible, but would eat bees as soon as not. It crawls over the ground leaving a crooked track like a snake, except that it has four feet to help propel its body along, and lives mostly under ground, while the other lizard lives mostly above ground. The "tame" or smaller kind seldom attain to a length of 8 inches, and do not crawl, but hop over the ground as clearly as a bird, leaving only the prints of its feet. It can climb up the side of an unpainted building, but the larger lizard can not. The small lizard can creep to within about three inches of a house-fly, and, by a flying jump, take in the fly before it can move; but the larger lizard must restrict its operations to a less wary kind of prey—a honey-bee, for instance.

The small lizard I consider a very good friend of the bee-keeper, unless, perhaps, they might become too numerous. Then they might possibly learn to eat bees on account of a scarcity of other insects. But I have watched them for over ten years, and only once have I seen one molest a bee, and that was owing to peculiar circumstances.

I have never seen a cat that would not catch a lizard of the small kind as soon as it would a mouse; but cats do not catch the larger one more than once or twice before they pay no more attention to them. Chickens will catch either kind whenever they can. But if the apiarist has no chickens or cats, let him place a warm board (either soft wood or a board which has some fuzz on it) on the ground on the warm side of a building, and another board on top of this, but separated by ½ or ⅝ inch blocks. Then place around three sides a rim to close the cracks up except on one side, which should be left open for the lizards to creep in. This will soon be used by all the lizards on the place as a roosting-place. As lizards hibernate through the night, in the early morning the top board can be lifted and the lizards picked up in a dormant state unless it should chance to be an unusually hot night.

To show how the lizard may be a friend to the apiarist I will describe a few instances.

For two or three months last summer there was a lizard which came into the house regularly between noon and one o'clock to catch flies and ants from the floor. There was a very industrious nest of ants located about thirty feet from the house, which formed a black line of foragers to the porch, and went up one of the porch-posts and down a wire into our wire-screened safe for fruit. I put tar on the wire, and then they marched in across the kitchen floor to a can of honey that was there for use on the table. Whenever honey was drawn into a dish a little would stick to the cap, and thus attract the ants. I noticed that, when the lizard caught a fly, it always turned and picked up from two to four ants, so I made him welcome. At the end of five or six weeks the ants seemed to be entirely cleaned out.

At another time an open five-gallon can of granulated honey was set on the stove to melt. A coarse cloth was thrown over it to keep robber bees out. The honey boiled up suddenly on one side and oozed through the meshes of the cloth. As I was at the dinner-table the honey was set off the stove on the floor a few feet from my chair, and about a dozen flies and five or six robber bees pounced upon the oozed honey at once. The lizard came in as usual, and immediately hopped up on the cloth among the bees and flies, and, after catching a dozen flies and not molesting a single bee, it climbed down as quietly as it came in, and disappeared out the door.

Although these lizards eat house-flies and ants, yet they prefer the larger flies, spiders, cockroaches, crickets, moths, canker and cut worms, and grasshoppers, all of which I have often seen them catch.

At the apiary, in the mountains, near the town of Chatsworth, it being a somewhat desertlike locality, spiders are scarce, I suppose because flies are scarce. There is one representative, however, and this of an unusual size, being about ⅝ or ¾ of an inch in length. It spins webs like a bunch of cotton, only to hide in. It approaches its prey stealthily, and springs upon it unawares. If it were not for lizards these spiders might become a formidable enemy to bees.

At Florence, forty miles away, and in the damper coast atmosphere, we are troubled by at least three varieties of spiders. Our hive-covers being of the ventilated kind, in the spaces two kinds of spiders establish their homes. The small one is not more than ¼ inch long, and lives on flies; but it often spins its webs before the entrances of the hives, and entangles the bees; but its webs not being strong the bees usually kick themselves free. The other spider is about ⅝ inch long, and has a bright-red spot on its thorax. This one makes a business of eating bees, and a bee seldom gets out of its net if once entangled. I often find its web before the entrance, so as to make it almost impossible for a bee to enter. It also constructs a mass of webs like a small bunch of cotton, with an entrance on one side, in which it hides from its enemies. I have seen lizards pull at one of these nests until the spider ran out and then catch it.

But last of all is the worst spider of all. This one is brown all over, and its body is about ¾ inch in diameter when full grown, and has a small thorax, and head attached to one side. This spider does not spin a web to hide in, but secludes itself by creeping closely into a corner and depending upon its resemblance to the surrounding material. Thus on a dark surface it may be of a dark-gray brown; on redwood, the exact color of the wood, while on a brick its back would be a red brown. As soon as night comes, this spider begins by casting a web from the eaves of the building under which it is secreted all day, to the branch of a tree—often from the ridge-board or chimney—to other parts of the house. In my apiary were 150 grapevine-trellises, eight feet high, and rows of trees around the outside, making good facilities for attaching their webs. They do not weave a net, but cast five or six threads near by, with one or two extending to a distant object. These webs are strong, and very sticky. When an insect strikes a single strand its fate is fixed. They will hold a bee by a single foot or the end of a wing, and it is only a few seconds until several feet and wings are caught. As the bee struggles, the single strand separates into several fine strands which have the quality of finally inclosing a bee so thoroughly that it is difficult to determine whether it is a bee or some other insect. The spiders remain secluded until about sunset, and then draw in the webs, which they devour, together with bees, flies, and other insects. During the following night they arrange more webs. I have often found five or six bees in the web of a single spider. Those which are caught are the earliest and most industrious bees, as one or two hours of sunshine dries the stickiness out of the webs so that they are entirely harmless.

There are several buildings adjacent to the apiary; and, after an absence of a month, I have found more than a hundred of these big fat spiders located about them, but never one below the eaves within reach of the lizards. Lizards regard them as such a rare delicacy that they are taken before they are half grown. I go at the high fellows with a board about four inches wide, and a handle on one end, and land a good number clear over into the street or against another building "on the fly." The greater part of them can be crushed in their hiding-places in daytime; but a few secrete themselves in inaccessible places, which can be poisoned by dusting a small amount of Paris green on a captured insect or on a moist web.

At one time these spiders became so numerous, and were so persistent, that I began to despair of maintaining the apiary in that location. Before my courage entirely failed we sold the chickens, and the old cat died, which allowed the lizards to increase so that the spiders have hardly needed any of my attention during the past summer.

Chatsworth, Cal., Nov. 10.

HOFFMAN FRAME AND FOLLOWER DEFENDED.

How the Frame Should be Used.

BY M. A. GILL.

I have watched with a great deal of interest the criticisms upon the Hoffman frame during the past year, and am wondering if the words of condemnation heaped upon it by the so-called experts would cause the manufacturers to stop making them and take a step backward by again offering to the trade that old nuisance the finger-spaced frame. As one who is handling 1000 colonies in Hoffman frames and about 200 with the old finger-spaced frames, I can not understand how any one can claim that the latter can be handled with more ease and speed. Three of us go over this amount of bees every six days during the swarming season, controlling all swarming by the shaking plan; and I know we could not do it with the old loose hanging frames, nor do I believe any other three people can if they will agree to keep their combs as straight as we do with the Hoffman frame.

Now, this may sound harsh; but I think if some of the people who are so severe in their criticisms of the Hoffman frame could attend your correspondence school for a year and learn how to have combs built in Hoffman frames, and how to manipulate them after they are built, they would cease their criticisms. I know of one bee-keeper who says he prefers the Hoffman frame, but prefers to leave out the follower, and then spaces the frames clear across the hive. Could any thing be imagined more ridiculous?

Another prefers to push the follower and half of the frame to one side of the hive and allow the bees to build one thick comb in the center to enable the operator to have one place of easy access.

Still another prefers to leave out the followers and allow the bees to build a thick comb at the side of the hive; but they generally build in a one-sided slab of honey that is attached to the side of the hive and then bridged across.

You see in every case they entirely lose the Hoffman feature. Many people have a great deal of trouble with the hive-follower, and some entirely condemn it.

Because the ten-frame hive as put upon the market is made so a follower can not be used, is that any thing against the follower? Because some people push the follower over against the side of the hive and allow the bees to glue it fast there, is that any thing against the follower? In the one case it's because the manufacturer does not allow enough room to use a follower, and in the other case the operator doesn't know how to use a good thing when he has it.

I know of many bee-keepers who work for comb honey, and it matters not what kind of hive or frame they have; if you want to examine one of their colonies you need a kit of burglar tools and the patience of Job to get into one of them at all.

Why do not bee-keepers, it matters not whether they are large or small producers, put their fixtures, their whole plant, it may be called, in working order at least once a year? What would be thought of a manufacturer who would allow the sawdust, bark, and edgings to fill up among his belts and wheels and stay there year after year? or the railroad companies who would allow the brakes on the cars to go dragging, and grass and weeds to grow across the tracks? There is a difference between fussiness and good order; but every bee-keeper should put his whole fixtures in good working order every spring.

There is one way and only one way to have Hoffman frames satisfactory — that is, to have the combs built with the follower properly adjusted, and the hive sitting level; then, ever afterward, properly adjust the frames and follower after each and every manipulation so as to retain the Hoffman feature, which is, accurate spacing.

I have long since learned that we of the common herd can not get what we want by trying to influence manufacturers; but if I were on a committee to change the Hoffman frame I would only suggest making the end-bars square on both edges, and would insist upon retaining the short rest. The fact is, bee-keepers need fixing over much more than does the Hoffman frame.

El Dorado Spring, Mo.

[As I remember, Mr. J. A. Green and the others who have criticised the Hoffman frame have not complained of it because the principle was not right, but because, in the hands of the inexperienced or careless, it was not handled properly, and therefore was not so good a frame as the ordinary unspaced frame of the Langstroth type.

You emphasize very clearly that there is a *right* way and a *wrong* way to handle the Hoffman frame, and certainly three-fourths of the trouble with the follower may be eliminated if it is left up against the frame and not against the side of the hive.

It is difficult to make a really good thing fool-proof; but I have always felt that the Hoffman frames came nearer to that desideratum than any loose, unspaced frame that was ever devised. It can not be spaced too close, although it may be spaced too wide. In the ten-frame hive there can not be much variation. It must come pretty nearly right. In the eight-frame it will be spaced equally correct providing a follower is used. It can not be any other way. My observation has always been that the inexperienced and careless would space the unspaced frames too close together, with the result that nearly half the capacity of the brood-nest was put out of commission.

We are giving our customers this year the option on a square or V edge; and we expect this year to make more of the square edge than of the V. The square edge will make the Hoffman more fool-proof than ever, because it will not make any difference how the end-bars are put on. They must go right every time. — ED.

"THE HOFFMAN FRAME COME TO STAY."

"Its Special Adaptation to Incompetent Help in the Apiary."

BY T. F. BINGHAM.

Being greatly pleased with the above heading, and more pleased and instructed with the management of it, and the indisputable facts brought out by Mr. Editor, I beg a few inches of space in your journal to explain some small points which may not have been very clearly shown.

Mr. Hyde makes his estimates on 1200 colonies of bees, which is a fair number for a yearly experiment. He states that a man can clean from 25 to 50 per day, and ought to get wax enough to pay for his labor. His heading indicates that incompetent labor may have been employed; but as such work was done in the spring, so as to have easy manipulation during the rush season, it would not be unreasonable, considering that the incompetent help should use an incompetent smoker and receive rheumatic hypodermic injections sufficient for a lifetime, added to that perennial pleasure every bee-keeper appreciates, namely, the simple fact that a honey-bee can do it but once.

It would not be unreasonable to estimate such labor at $2.00 per day, and that 25 colonies so cleaned would be a fair day's work. Eight pounds of wax obtained would have a cash value of $2.00. It would further represent 160 lbs. of choice honey used in making it, worth 10 cts. per lb., or $16.00. Now add this $16.00 and the $2.00 together, and the result is, the incompetent help cost the man who employed him $18.00 per day, and spent 48 days in getting wax out of the hive and off from the frames, so as to be able to use said hives and the frames that would stay unless so cleaned every spring. It may be a comfort to realize that the wax in the hives pays for the work in cleaning the hives, and that the hives are in order for the busy season, even though it cost $96.00 to do it; but the estimated consumption of 20 lbs. of choice honey to produce 1 lb. of wax calls us back to figures again.

The whole amount of wax from the 1200 hives would be 384 lbs., which, multiplied by 20, the number of pounds of *nicest* honey (as this extra, which had to be cut out, was stored in the section-honey run) would represent 7680 lbs. While the wax would have been worth $96.00 at 25 cts. per lb., the honey would, at 10 cts. per lb., have been worth $768. Now add the $96.00 that the labor of cleaning represents, and we have $864 net loss for the privilege and pleasure of using a loose or hanging frame, on the outside of which bees, as Mr. Hyde states, store honey. No bee-keeper who has used hanging frames of the Hoffman or other makes will for a moment question Mr. H.'s statements. They are incontrovertible.

In the years between 1862 and 1865 your correspondent had the pleasure and experience of handling about 300 colonies of Italian bees in the original Langstroth hives. Italian bees were worse about building up into the sections or boxes then than now. The extractor had not become generally known, neither comb foundation; and Italian bees, true to their instincts, persisted in doing just what Mr. Hyde vividly portrays.

This not remarkable instinct of bees led your correspondent to construct a hive in 1865 securing the practical advantages of movable combs, and at the same time securing all the honey and combs within the frames and sections, instead of part of it on the outside.

Farwell, Mich.

[The amount of honey to make a pound of wax used to be estimated at 20 lbs.; but later and more reliable experiments where bees have access to the open air show that this figure is altogether too high. Between 4 and 7 lbs. were the figures that were secured, if I remember correctly, so that your estimate ought to be one-fourth as large for the actual amount of honey. Even then you apparently have the best of the argument, providing that Mr. Hyde does not show that your system of shallow frames requiring extra handling of combs piles up the cost in his favor. I do not quite see how your top-bars should be cleaner than those on the thick top-bar of the *regular* Hoffman frame. But Mr. Hyde uses a *thin* top-bar to all his Hoffmans—the very kind of bar that invites all kinds of burr-combs. If he used the *regular* top-bar he would have far less of wax and scraping.—ED.]

FOOD COMMISSIONERS AND ADULTERATED HONEY.

How the Innocent May Suffer for the Guilty.

BY L. L. TRAVIS.

It appears to me that Wm. A. Selser strikes a note of timely warning to bee-keepers on page 1063, Nov. 15. According to his theory, and I am of the opinion that he is right in every particular, both honey producers and dealers are running considerable risk in labeling honey "pure." I produce extracted honey exclusively, and have sold tons to the grocery trade in pails and cans, and this fall have put up some in bags. Every package ever sold by me has been labeled "pure," and my warrant was back of it. I have always had the faith to believe that, as long as I put out honey just as it came from the bees, of good body and quality, I was doing an honorable and safe business; but Bro. Selser's article sets me to wondering where I am at. Is it not possible that I have innocently made myself liable to a fine, and also endangered my friends the grocers?

I cite you to a clipping from my county paper to show how the pure-food laws are working in this section:

> The firm of Colt & McNamara is among the many hundreds of dealers who have been caught between the dishonest manufactures and the pure-food agent. Some time ago an agent of the pure-food commission was here and purchased some maple syrup of this firm, and, after an analysis, they sent notice that the maple syrup was not all maple, and that there was a fine of $50. Mr. McNamara was at Tunkhannock Tuesday, and settled the matter by paying the fine. While this may be a good law it is a rank injustice to Messrs. Colt & McNamara who conduct their store by honest dealing and good goods, and who were assured by the manufacturer that the syrup was the best on the market. There should be some means whereby the maker should suffer instead of the retailer, for impure product.

Now, I believe Messrs Colt & McNamara to be innocent of knowingly selling adulterated goods; but you can see what happened to them. I have always believed that I was putting out pure honey; but since reading Bro. Selser's article there is a question in my mind whether I have or not. Although my honey may seem, both to myself and the consumer, to be all right, is there not a possibility (and I might say a probability) that the bees have put in enough honey-dew or the juice of fruit to condemn it in the eyes of the pure-food officers, and put my customers in the same predicament that Messrs. Colt & McNamara are in?

I dislike to offer any thing for sale that I dare not warrant as strictly pure; but this is a danger that we ordinary bee-keepers can ill afford to assume; and as we are not all of us chemist enough to analyze honey, what shall we do—go to the expense of having an expert analyze all our honey, or change our labels?

West Nicholson, Pa., Nov. 28.

[It is true that a hardship is sometimes put on an innocent person who may unwittingly buy honey that has been adulterated by some one else; but if the law were broad enough to allow the seller to escape, the actual adulterator could hide under cover, and keep on with his nefarious business by having a second party dispose of his product. If that second party could escape the clutches of the law by saying that he did not know the honey was adulterated (and he might swear to that on the witness stand), it would leave a great wide gap for fraud. It were better for the innocent to suffer occasionally, in order that the pure-food law should be effective, than to have a law on the statute-books with so wide a loop-hole in it that the intent of it would be entirely nullified.

We came near being held up during the past summer because some honey we sold to some one else had been adulterated *after it* left our hands. The party who sold the goods averred that he bought them originally of the Root Co. We both received notice from the pure-food commissioner not to sell any more of these goods. We insisted that the honey, when it left us was pure, and proved it finally, but not till after a long string of correspondence had passed between us and the food commissioner. As the pure-food laws stand in the various States, it is incumbent on the purchaser of any honey to make very sure that such honey is pure when it leaves his hands. This puts a double check on the aulterator.

I would not leave out the word "Pure" on labels under any consideration.—ED.]

Heads of Grain
from different fields

SHAKEN SWARMING A SUCCESS, AND WHEN.

Is "shook" swarming a success in case a man can not be with his bees at swarming? Will the old hive, when removed, stay? and how are the queens fertilized? As I understand, they are fertilized in the air.

WALTER S. BELL.

Mena, Ark., Nov. 6.

[As Dr. Miller has had more experience in handling swarms than we have had here at Medina, I turned this inquiry over to him and he replies:—ED.]

The plan of shaking swarms, so far as it is at all successful, is especially adapted to meet the wants of those who can not have, or do not wish to have, any one on hand to watch for swarms. Indeed, it may be called anticipatory swarming, the bee-keeper taking the matter into his own hands, and putting the bees in the condition of a swarm before they actually take that step themselves. And yet, having tried it in a number of cases in an out-apiary, I am hardly prepared to say that it is just as easy to get along with in all respects as natural swarming; so if you try it, be on the lookout, for a time, to see whether it exactly fits your case.

There need be no trouble about the old colony, or stump, staying where put. Of course, if any field bees are left in it they will leave and join the swarm, just as they would if it had been a natural swarm; but enough bees should be left with the brood to make sure against any danger from chilling, and the field bees that leave will be more than made up by the rapidly hatching young bees.

The stump colony will rear a queen from the brood present, although it is better to give it a queen or a ripe queen-cell, and the young queen will be fertilized just as in all cases by flying out to meet a drone high in air.

FEEDING BEES IN THE CELLAR, ETC.

In wintering bees in a cellar, and their stores being rather scarce, would it be advisable to try to feed them sugar syrup with a division-board feeder between now and spring? In storing them in the cellar, which would be the better—to leave an empty super on to give them plenty of air, or to take it off and put the cover down, closing the brood-frames, allowing a bee-space between them?

A. I. NEFF.

McPherson, Pa., Dec. 12, 1904.

[Sugar syrup may be given to bees in the cellar with the regular division-board feeder of the Doolittle type. It would be advisable, as you suggest, to put the feeder in the middle of the brood-nest; but a better way would be to give the bees cakes of hard candy. The candy should be made by boiling granulated-sugar syrup, with a little honey in it, so that, when cool, it will form into a hard translucent cake. A two or three pound brick of this when put on top of the brood-frames will be enough to take care of any colony short of stores.

The question as to whether the empty super should be put on top will depend largely on the size of the entrance. If it is one inch by the width of the hive, take off the super and put the cover on top next to the frames. If the entrance is only ⅜ inch deep it may be advisable to leave the super on, putting in a chaff cushion. In this case the cover should be left off. In the absence of the cushion any old carpeting may do as well.—ED.]

HOW TO WASH OUT SECOND-HAND KEROSENE-CANS SO AS TO BE SUITABLE FOR HONEY.

Please tell us how to clean coal-oil cans so that we can use them for honey. Most of the oil here is sold in five-gallon cans; and, when empty, we can get them for 10c ts. each, good as new, hundreds of them.

PAYETTE VALLEY BEE CO.

Payette, Ida., Dec. 5.

[Second-hand kerosene-cans have been cleaned with strong lye or a solution of caustic potash. The cleaning mixture should be boiling hot when poured into the can. The cans should be shaken violently, emptied out, and then rinsed thoroughly with boiling hot water. We never had any experience ourselves, and therefore feel a little hesitation about recommending second-hand kerosene-cans. Some of our subscribers have tried them to their sorrow. It seems to be very difficult to remove the kerosene odor; as honey is very susceptible to foreign odors, the least trace of kerosene taste or smell practically ruins it for the market, especially if it be fine table honey. After the cans are washed out they should be left out in the sun unstoppered as long as possible before filling them again with honey, for the purpose of letting any kerosene odors that may be in the cans escape.

I think one of our subscribers recommended washing-soda; but whether using soda, caustic potash, or strong lye, one should remember that after a certain number have been washed it is advisable to make an entirely new solution, for the reason that the washing mixture will become impregnated very strongly with kerosene, making a sort of soap.—ED.]

PAINT FOR HIVES—WHAT COLOR TO USE.

Part of my hives are painted white and part light blue. I am going to paint them again. Will it make any difference if I paint them all white? Will it embarrass the bees any in finding their own hives if I change the color of them at this time of the year?

JAMES PARKER, SR.

Wabuska, Nev., Dec. 8, 1904.

[It will make no practical difference if you paint all your hives white, even though some of them may now be blue. While there can be no question but that bees recognize color to a very great extent, yet the individual surroundings of a hive would probably be sufficient to enable each bee to recognize its hive, even if the color did change.—ED.]

DOES THE USE OF THE PERFORATED ZINC HONEY-BOARD REDUCE THE AMOUMT OF HONEY STORED?

Can we get as much honey if we use the honey-board on the brood-hive all the time?

Corona, Cal., Nov. 21. L. NEWTON.

[By "honey-board" I presume you mean perforated zinc. No; there is no proof as yet that the use of this device in any way curtails the amount of surplus honey. Why should it? True, it puts up a slight obstruction; but with the number of perforations through which the bees can pass, they ought to store as much with the board on as without.—ED.]

INFORMATION WANTED BY THE EDITOR OF ST. NICHOLAS.

For some time I have been endeavoring to advance the claims of honey-bees as an educational ("Nature Study") topic. It seems to me that they are more available, more interesting, and more practical for the schoolroom, and for teachers and pupils outside of the schoolroom, than certain other branches of entomology that have been more talked about and studied by teachers and pupils.

I desire to obtain information of experiences with bees by teachers who have kept bees especially from the "Nature Study" standpoint. Also will young people under eighteen years of age who have personally cared for bees please write me of their experiences?

Any suggestions from veteran bee-keepers for interesting teachers and pupils in bees will be much appreciated.

EDWARD F. BIGELOW,

Lecturer at Teachers' Institutes, and "Nature and Science" Editor of the *St. Nicholas Magazine.*

Stamford, Conn.

[Those in position to furnish the desired information will correspond with Mr. Bigelow direct.—ED.]

FAILURE TO CURE; WHAT'S THE TROUBLE?

I have had foul brood among my bees for four years. I can't cure it, except for the time being, by any process.

WM. H. HARLOW.

Mt. Vernon, Ill., Nov. 18.

[If you followed the McEvoy method carefully the disease ought not to reappear. It is my opinion that in administering the treatment you failed to disinfect the smokers and tools, and possibly your own person. Unless the treatment is thorough, every thing disinfected, the disease is quite liable to reappear. In some cases it may be advisable, after giving the treatment, or, rather, before giving it, to burn out the inside of the old hive by holding it momentarily over a bonfire. This will thoroughly disinfect it so that the hive can be given back without any fear of its infecting the bees. In your case I would advise scorching out all the hives as an additional precaution.—ED.]

NOISES ABOVE A BEE-CELLAR.

What is your opinion as to the sound of an organ? How will it affect the bees wintering in the cellar under it, only one-inch floor between?

J. BAILEY.

Bracebridge, Ont., Dec. 6.

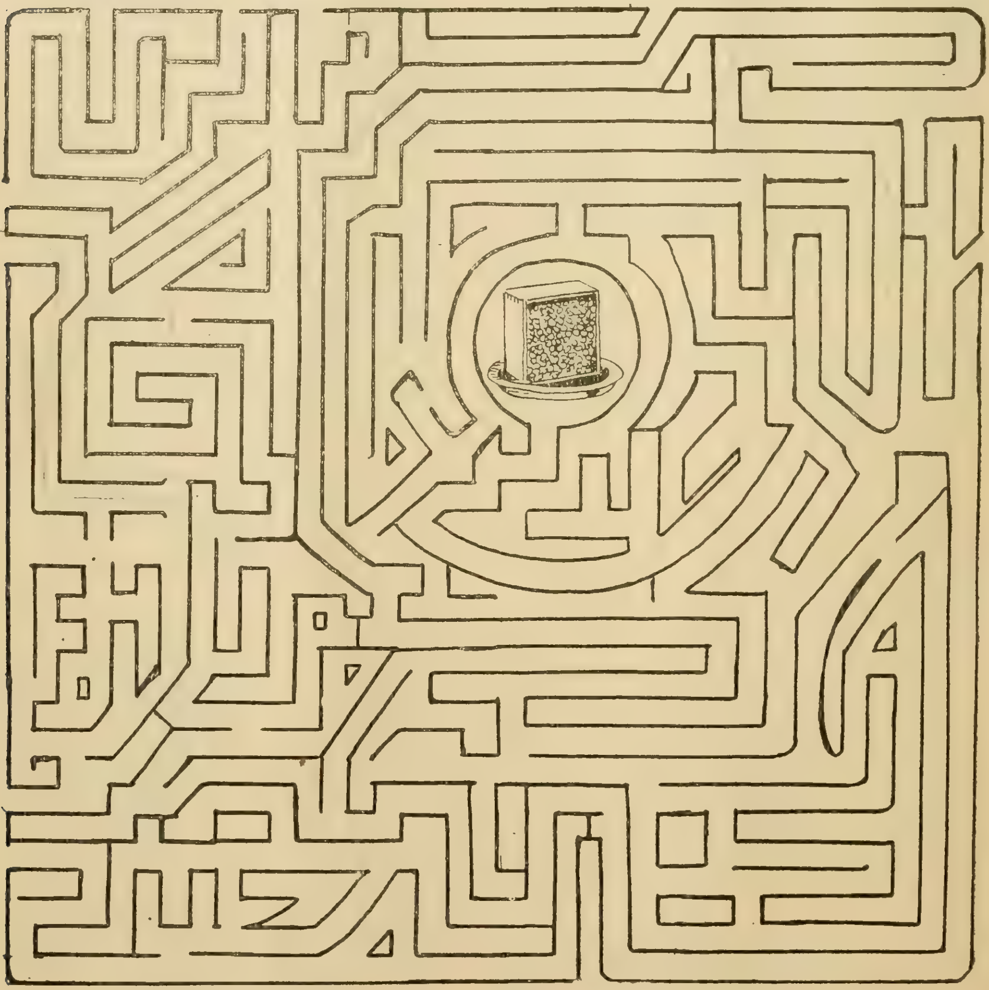
[Noises above winter repositories do little or no harm. The organ would not interfere in the least.—ED.]

V VS. SQUARE EDGES ON HOFFMAN FRAMES.

Having read the two articles from Messrs. Hyde and Davenport on Hoffman frames, I add my testimony. I suppose it is unpleasant for you now to go back on that V edge in Hoffman frames after counting on its imagined excellence so long. Well, I found if the frames and hive were not made very exact, after a few years' use, and propolis had accumulated, they would slip past each other, thus reducing the space about ¼ inch. This so often happened, and I had to be so guarded, that I hated the Hoffman frames worse on account of it; and, having a few frames made at home without the V, I found them much more satisfactory. I have 40 of those hives with supers the same, 10 frames, 11 in. deep, 13 long in brood-chamber, and 12 in the super, with hanging Jones frames in the half of my yards, 250 colonies or so. So, for humanity's sake, do discard the V, and, as you say, make upright bars about ⅜ thick.

R. F. WHITESIDE.

Little Britain, Can., Nov. 23.



GET THE SECTION OF HONEY WITHOUT JUMPING OR CLIMBING FENCES.

[We often hear about the royal road to success, as if there were no square turns or retracing of steps. Whatever we may say about other things, there is no real short cut to the production of fancy comb honey. The old adage, "Try, try again; if at first you don't succeed," may apply in the case of the fancy honey shown above. Get it? Of course you can if you go along the right way; and you won't have to jump or climb fences either. It may look more difficult than it is, and, again, it may prove more complicated than it seems. Try it.—ED.]

IMPRISONING THE ROBBERS.

Last summer, while working with my bees, I had occasion to pass by No. 44, a colony that I had just overhauled, and found that it was being robbed. No. 49 was doing the robbing, and, being a little vexed, I gave them a good smoking and then went to dinner. On returning I found that No. 49 was being robbed by No. 44, and, being afraid others would take a hand in it, I spread a piece of mosquito-bar over each one of them and went on about my work. In about two hours I removed the mosquito-bar and they went on about their legitimate business. I prefer putting the robbers behind the bars (where all thieves ought to be) instead of confining the innocent parties in order to protect them. It causes the robbers to mind their own business, and gives the robbed colony a chance to recover. This, of course, is where there are but two colonies concerned.

A sure way to tell when a colony is being robbed is to examine the bees' honey-sacs as they come out; if they contain ripe honey, it is a case of robbing. In order to find what colony is doing the robbing, examine the honey-sacs of the bees as they rush into their own hives. If their honey-sacs contain ripe honey you have caught the thieves.

F. W. MORTON.

El Dorado Springs, Mo.

ACREAGE OF ALFALFA NECESSARY TO TAKE CARE OF 50 COLONIES.

The question is asked in GLEANINGS, "How many acres of honey-plant are necessary to take care of 100 colonies of bees?" This being an alfalfa district I thought it would perhaps interest my fellow bee-keepers to state my experience this summer, as the above question has often put me to thinking regarding pasturage.

In partnership with my brother we had 79 colonies, spring count. The season was at least three or four weeks late, having cold nights accompanied with drizzling rains at intervals throughout May until the middle of June. By this time the alfalfa was starting to bloom, "scattering." There were very few stores in the hives, no brood-rearing to speak of, as we have no blossoms to mention until alfalfa comes on. On the 26th of June we had two swarms come out which we had to feed for a few days on account of a cold rain. After then we had fine weather, and the bees went to work with a will on the thousands of acres of alfalfa surrounding us, which had a purple cast by this time. By the middle of July all the alfalfa was cut except a little around ditches, etc., our own fields included, and every thing seemed to be at a standstill in the apiary. Up to this time we had hived 48 swarms, making a total of 128 colonies. There being very little sweet clover in bloom we decided that the only surplus honey we should get would be gathered on our own farm; and having 30 acres or more of alfalfa we knew we could control that amount of pasture, as other fields are generally cut when coming in bloom, making better hay. When the first cutting of alfalfa was all done we had only 19 colonies working in the supers. On the 5th of August we were putting on another round of supers, honey coming in galore. That 30-acre field was a sight to behold. From morning till night it was a constant uproar. We stood there many times and listened to the buzz overhead as they passed to and fro, it doing us more good to know that they had at last struck a land of plenty, and we the satisfaction of knowing that we can control to a certain extent our own pasture. That alone amounts to us to more than the loss in hay.

Though only a novice of a few years' experience in bee-keeping, my idea of success in that line, "to be master of the situation," is to control as much as possible our own pasture, and not depend on our neighbors being delayed in cutting their fields of bloom. We are not so fortunate as some bee-keepers where nature provides with plenty of moisture and a constant honey-flow throughout the season. A scarcity of water for irrigation means a scant honey crop; therefore, profiting by this year's experience with alfalfa we will try next year to regulate the bloom so as to have a paradise for the bees throughout the season.

I am satisfied that 1000 acres of honey-plant, as stated in GLEANINGS, isn't necessary to take care of 100 colonies of bees. We had 50 colonies that made from three to six supers, while the others fell below three supers.

GEO. J. SMITH.

Fort Lupton, Colorado, Nov. 30.

[These are the kind of facts we are looking for. We should be pleased to hear from others.—ED.]

THE SUCCESS OF AN A B C SCHOLAR IN CUBA.

A year and a half ago I bought some native bees in the hollow log hives. I knew little about them except how to transfer and how to extract honey, so I got the A B C of Bee Culture and GLEANINGS, and studied them hard. I realized at once I should have to get the bees out of the log hives, so I bought some Dovetailed hives and transferred them. They seemed so gentle that I thought I would try them and not get Italians; but I got very little honey from them that fall, and they let the moth get in the hive and play the mischief. So I bought twelve untested Italian queens from The A. I. Root Co. Nine of them lived, and I had only ten hives to start with last April. By September I got them up to over thirty. Now I have almost one hundred. I lost one or two swarms, and one of my best colonies got smothered in moving it. Then I have been badly handicapped all along by not being able to get supplies, etc., in time. But I shall get some honey this year. I have already extracted 800 lbs. There is that much, and more, in the hives now, and the season is not nearly over yet. Do you think this is doing well?

R. M. MCMURDO.

Cauto, Cuba, Oct. 21.

OUR HOMES,

BY A. I. ROOT.

What hath God wrought?—NUM. 23:23.

Dear friends, I have a wonderful story to tell you—a story that, in some respects, outrivals the Arabian Nights fables—a story, too, with a moral that I think many of the younger ones need, and perhaps some of the older ones too if they will heed it. God in his great mercy has permitted me to be, at least somewhat, instrumental in ushering in and introducing to the great wide world an invention that may outrank the electric cars, the automobiles, and all other methods of travel, and one which may fairly take a place beside the telephone and wireless telegraphy. Am I claiming a good deal? Well, I will tell my story, and you shall be the judge. In order to make the story a helpful one I may stop and turn aside a good many times to point a moral.

In our issue for Sept. 1 I told you of two young men, two farmer's boys, who love machinery, down in the central part of Ohio. I am now going to tell you something of two other boys, a *minister's* boys, who love machinery, and who are interested in the modern developments of science and art. Their names are Orville and Wilbur Wright, of Dayton, Ohio. I made mention of them and their work on page 241 of our issue for March 1 last. You may remember it. These two, perhaps by accident, or may be as a matter of taste, began studying the flights of birds and insects. From this they turned their attention to what has been done in the way of enabling men to fly. They not only studied nature, but they procured the best books, and I think I may say all the papers, the world contains on this subject. When I first became acquainted with them, and expressed a wish to read up all there was on the subject, they showed me a library that astonished me; and I soon found they were thoroughly versed, not only in regard to our present knowledge, but every thing that had been done in the past. These boys (they are men now), instead of spending their summer vacation with crowds, and with such crowds as are often questionable, as so many do, went away by themselves to a desert place by the seacoast. You and I have in years past found enjoyment and health in sliding down hill on the snow; but these boys went off to that sandy waste on the Atlantic coast to slide down hill too; but instead of sliding on snow and ice they slid *on air*. With a gliding machine made of sticks and cloth they learned to glide and soar from the top of a hill to the bottom; and by making not only hundreds but *more than a thousand* experiments, they became so proficient in guiding these gliding machines that they could sail like a bird, and control its movements up and down as well as sidewise. Now, this was not altogether for fun or boys' play.* They had a purpose in view. I want to stop right here to draw one of my morals. If I allude to myself somewhat, please do not think I do it because I wish to boast. Some of you have read or heard me tell of the time when my attention was first called to bees. Almost the first thing I did was to go to the bookstores and see what *books* were to be found on the subject. I studied these books day and night, and read them over and over again. Then I procured the books and bee-journals from the old world; and when the language was something I could not manage I hired an interpreter to translate for me until I knew pretty nearly what the book contained. In less than one year I was in touch with the progressive bee-keepers of the world; and the *American Bee Journal*, that had been dropped for lack of support, was started up again. I mention this to show you that my success in bee culture, from the very first, was not luck or chance. It was the result of untiring energy and work. Now let me draw a contrast. During the years that are past, quite a number of men have come to me with their patented hives. A good many of these men had never seen a bee-journal. Some of them who had paid out their hard earnings to the Patent Office had almost never seen a book on bee culture, and they were not sure, from actual experience, of the existence of the queen-bee. We have inventors at the present time who are giving their lives and money to the four winds in the same poor foolish way. If you wish to make a success of any thing, or in any line among the many lines that lie before us in this great world of ours, find out what the great and good men have done in this special line before you.

Well, these two men spent several summers in that wild place, secure from intrusion, with their gliding machine. When they became experts they brought in, as they had planned to do, a gasoline-engine to furnish power, and made a little success with their apparatus before winter set. As soon as the weather would permit, their experiments were resumed the past season. You may have seen something in regard to it in the papers; but as their purpose has been from the beginning to the end to avoid publicity, the great outside world has had but very little opportunity of knowing what is going on. The conditions were so different after applying power that it seemed at first, to a great extent, as if they would have to learn the trade of guiding their little ship all over again. At first they went only a few hundred feet; and as the opportunity for practice in guiding and controlling it was only a few seconds at a time, their progress was necessarily very slow. Let me digress again just a little.

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* When I suggested that, even though sliding down hill on the air was very nice, it must have been quite a task to carry the machine back to the top of the hill every time, the reply was something like this: "Oh! no, Mr. Root—no task at all. Just remember that we always sail *against* the wind; and by a little shifting of the position, the wind does the greater part of the work in carrying it back." It just blows it back (whenever the wind is strong enough) up hill to the starting-point.

I do not know exactly how many years ago it was, perhaps something like thirty, that I saw in the *Scientific American* that they had in France what was called at that time a velocipede. As soon as I saw the description I sent an order for one, and I think I had about the first machine in the semblance of a bicycle that was ever in Ohio—perhaps one of the first brought into the United States. The machine cost over $100; and as it was a heavy affair, the express on it cost quite an item more. When it came to hand, after days and weeks of anxious waiting, neither myself nor anybody else could ride it at all. The whole town jeered at me, and the story of the "fool and his money" was hurled in my teeth so many times I almost dread to hear it even yet. Men of good fair understanding pointed their fingers at me, and said that anybody of good common sense ought to know that *that* thing would not stand up with a man on it, for that would be an utter impossibility. I worked at it, the crowd in my way, for several hours in the morning. Finally I rented the largest hall in the town, went in with one trusty boy who had faith, for a companion, and *locked the door.* After quite a little practice on the smooth floor of the hall I succeeded in riding from one end to the other; but I could not turn the corners. When, after still more practice, I did turn one corner without falling, how my spirits arose! A little later I went in a wabbly way clear around the room. Then my companion did the same thing, and, oh how we did rejoice and gather faith! A little later on, with a flushed but happy face, I went out into the street and rode around the public square. You can guess the rest of it. Well, these boys wanted just the same kind of privacy to try their flying-machine that I needed for my velocipede; but as it measures about forty feet from the tip of one wing to the tip of the other, instead of a large hall they wanted a large level field in some out-of-the-way place. I found them in a pasture lot of 87 acres, a little over half a mile long and nearly as broad. The few people who occasionally got a glimpse of the experiments, evidently considered it only another Darius Green, but I recognized at once they were really *scientific explorers* who were serving the world in much the same way that Columbus did when he discovered America, and just the same way that Edison, Marconi, and a host of others have done all along through the ages.

In running an automobile or a bicycle you have to manage the steering only to the right and left; but an air-ship has to be steered up and down also. When I first saw the apparatus it persisted in going up and down like the waves of the sea. Sometimes it would dig its nose in the dirt, almost in spite of the engineer. After repeated experiments it was finally cured of its foolish tricks, and was made to go like a steady old horse. This work, mind you, was all new. Nobody living could give them any advice. It was like exploring a new and unknown domain. Shall I tell you how they cured it of bobbing up and down? Simply by loading its nose or front steering-apparatus with cast iron. In my ignorance I thought the engine was not large enough; but when *fifty pounds* of iron was fastened to its "nose" (as I will persist in calling it), it came down to a tolerably straight line and carried the burden with ease. There was a reason for this that I can not explain here. Other experiments had to be made in turning from right to left; and, to make the matter short, it was my privilege, on the 20th day of September, 1904, to see the first successful trip of an airship, without a balloon to sustain it, that the world has ever made, that is, to turn the corners and come back to the starting-point. During all of these experiments they have kept so near the soft marshy ground that a fall would be no serious accident, either to the machine or its occupant. In fact, so carefully have they managed, that, during these years of experimenting, nothing has happened to do any serious damage to the machine nor to give the boys more than what might be called a severe scratch. I think great praise is due them along this very line. They have been prudent and cautious. I told you there was not another machine equal to such a task as I have mentioned, *on the face of the earth;* and, furthermore, just now as I dictate there is probably not another man besides these two who has learned the trick of controlling it. In making this last trip of rounding the circle, the machine was kept near the ground, except in making the turns. If you will watch a large bird when it swings around in a circle you will see its wings are tipped up at an incline. This machine must follow the same rule; and to clear the tip of the inside wing it was found necessary to rise to a height of perhaps 20 or 25 feet. When the engine is shut off, the apparatus glides to the ground very quietly, and alights on something much like a pair of light sled-runners, sliding over the grassy surface perhaps a rod or more. Whenever it is necessary to slow up the speed before alighting, you turn the nose up hill. It will then climb right up on the air until the momentum is exhausted, when, by skillful management, it can be dropped as lightly as a feather.

Since the above was written they have twice succeeded in making four complete circles without alighting, each circle passing the starting-point. These circles are nearly a mile in circumference each; and the last flight made, Dec. 1, could have been prolonged indefinitely had it not been that the rudder was in such position it cramped the hand of the operator so he was obliged to alight. The longest flight took only five minutes and four seconds by the watch. Over one hundred flights have been made during the past summer. Some of them reached perhaps 50 or 60 feet above ground. On both these long trips *seventy pounds* instead of fifty of cast iron was carried on the "nose."

Everybody is ready to say, "Well, what use is it? what good will it do?" These are questions no man can answer as yet. However, I will give you a suggestion or two. The man who made this last trip said there was no difficulty whatever in going above the trees or anywhere he chose; but perhaps wisdom would dictate he should have still more experience a little nearer the ground. The machine easily made thirty or forty miles an hour, and this in going only a little more than half a mile straight ahead. No doubt it would get up a greater speed if allowed to do so—perhaps, with the wind, a mile a minute after the first mile. The manager could doubtless go outside of the field and bring it back safely, to be put in the little house where it is kept nights. But no matter how much time it takes, I am sure all the world will commend the policy so far pursued—go slowly and carefully, and avoid any risk that might cause the loss of a human life. This great progressive world can not afford to take the risk of losing the life of either of these two men.*

I have suggested before, friends, that the time may be near at hand when we shall not need to fuss with good roads nor railway tracks, bridges, etc., at such an enormous expense. With these machines we can bid adieu to all these things. God's free air, that extends all over the earth, and perhaps miles above us, is our training field. Rubber tires, and the price of rubber, are no longer "in it." The thousand and one parts of the automobile that go to make its construction, and to give it strength, can all be dispensed with. You can set your basket of eggs almost anywhere on the upper or lower deck, they will not even rattle unless it be when they come to alight. There are hundreds of queer things coming to light in regard to this new method of travel; and I confess it is not clear to me, even yet, how that little aluminum engine, with four paddles, does the work. I asked the question, "Boys, would that engine and these two propellers raise the machine from the ground if placed horizontally above it?"

"Certainly not, Mr. Root. They would not lift a quarter of its weight."

"Then how is it possible that it *sustains* it in the air as it is?"

The answer involves a strange point in the wonderful discovery of air navigation. When some large bird or butterfly is soaring with motionless wings, a very little power from behind will keep it moving. Well, if this motion is kept up, a very little incline of the wings will keep it from falling. A little *more* incline, and a little more push from behind, and the bird or the butterfly, or the machine created by human hands, will gradually rise in the air. I was surprised at the speed, and I was astonished at the wonderful lifting power of this comparatively small apparatus. When I saw it pick up the fifty pounds of iron so readily I asked if I might ride in place of the iron. I received, by way of assurance, the answer that the machine would no doubt carry me easily. You see then I would have the "front seat;" and even if it *is* customary (or used to be in *olden* times) to accord the front seat to the ladies, I think the greater part of them would say, "Oh! sit still, Mr. Root. Do not think of getting up to give *us* your seat."

At first there was considerable trouble about getting the machine up in the air and the engine well up to speed. They did this by running along a single-rail track perhaps 200 feet long. It was also, in the early experiments, found advisable to run against the wind, because they could then have a greater time to practice in the air and not get so far away from the building where it was stored. Since they can come around to the starting-point, however, they can start with the wind even behind them; and with a strong wind *behind* it is an easy matter to make even *more* than a mile a minute. The operator takes his place lying flat on his face. This position offers less resistance to the wind. The engine is started and got up to speed. The machine is held until ready to start by a sort of trap to be sprung when all is ready; then with a tremendous flapping and snapping of the four-cylinder engine, the huge machine springs aloft. When it first turned that circle, and came near the starting-point, I was right in front it; and I said then, and I believe still, it was one of the grandest sights, if not the grandest sight, of my life. Imagine a locomotive that has left its track, and is climbing up in the air right toward you—a locomotive without any wheels, we will say, but with white wings instead, we will *further* say—a locomotive made of aluminum. Well, now, imagine this white locomotive, with wings that spread 20 feet each way, coming right toward you with a tremendous flap of its propellers, and you will have something like what I saw. The younger brother bade me move to one side for fear it might come down suddenly; but I tell you, friends, the sensation that one feels in such a crisis is something hard to describe. The attendant at one time, when the rope came off that started it, said he was shaking from head to foot as if he had a fit of ague. His shaking was uncalled for, however, for the intrepid manager succeeded in righting up his craft, and she made one of her very best flights. I may add, however, that the apparatus is secured by patents, both in this and in foreign countries; and as nobody else has as yet succeeded in doing any thing like what they have done I hope no millionaire or syndicate will try to rob them of the invention or laurels they have so fairly and honestly earned.

When Columbus discovered America he did not know what the outcome would be, and no one at that time knew; and I doubt if the wildest enthusiast caught a glimpse of what really did come from his discovery. In a like manner these two brothers have probably not even a faint glimpse of what their discovery is going to bring to the children of men. No one living can give a guess of what is coming along this line, much better than any one living could conjecture the final outcome of Columbus' experiment when he pushed off through the trackless waters. Possibly we may be able to fly *over* the north pole, even if we should *not* succeed in tacking the "stars and stripes" to its uppermost end.

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*If these two men should be taken away by accident or otherwise, there is probably no one living who could manage the machine. With these men to teach them "the trade" however, there are plenty who could doubtless learn it in a few weeks.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange double-barrel shot-gun for one pair of minks. Any person in the trap business will please correspond with me.
Address 216 Court St., Reading, Pa.

WANTED.—To exchange modern firearms, for incubators or bone-mills.
WM. S. AMMON, 216 Court St., Reading, Pa.

WANTED.—To exchange bees, queens, or extracted honey for a 2½ or 3 h.-p. gasoline-engine and buzz-saw. THE HYDE BEE CO., Floresville, Texas.

WANTED.—To exchange incubator and homer pigeons for honey. G. ROUTZAHN, Biglerville, Pa.

WANTED.—Combination foot-power circular saw.
S. V. REEVES, Haddonfield, N. J.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
ED. YOUNG, Boonville, Mo.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To exchange dental chair, engine, lathe, etc.; want bees and supplies.
DR. BALL, Plainfield, Ct.

WANTED.—Foot-power saw for dynamo and silver-plating outfit. J. P. LYTLE, Chambersville, Pa.

WANTED.—To exchange about 500 ½-story Heddon hives, with worker-comb in 300; some empty frames, covers, and bottom-boards; for bees or cash.
ARCHIE COGGSHALL, West Groton, N. Y.

Situations Wanted.

WANTED.—Position by a strong young man to assist in apiary in the States or Cuba. No bad habits.
WELLESLEY WALSH, Port Marie, Jamaica, W. I.

WANTED.—Position as helper in queen-yard. Southwest preferred. Address FRED GALLAHER,
Rocky Ford, Colo.

Help Wanted.

WANTED.—A young man to take charge of 240 stands of bees in Wewahitchka, Calhoun Co., West Florida. Must understand taking comb honey. Want best of references—prefer recommendations from A. I. Root Co.
S. S. ALDERMAN, Wewahitchka, West Florida.

WANTED.—Young man who is thoroughly capable of taking charge of apiary, and understands introducing and breeding of queens. Can furnish employment the year round to a good man.
W. P. SMITH, Penn, Lowndes Co., Miss.

WANTED.—Help with our bees; steady position for the right man with experience. Give particulars first letter.
THOS. C. STANLEY & SON, Manzanola, Col.

WANTED.—Three salesmen for our new County, Township, and Railroad Surveys of the various States; counties and towns indexed; just off the press. Salesmen now at work are sending in heavy reports. A splendid opportunity for energetic men. Address
RAND, MCNALLY, & CO., Chicago, Ill.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Melilotus (sweet clover) seed, $2 per bu.
W. P. SMITH, Penn, Lowndes Co., Miss.

FOR SALE.—Fox hounds and puppies. Hovey strain. Each one guaranteed. Enclose stamp for prices.
W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—200 swarms of bees in No. 1 Langstroth hives, etc., residence, honey-houses, and small piece of land. G. F. WILSON,
Soldiers Grove, Crawford Co., Wis.

FOR SALE.—Gladioli bulbs. These bulbs produced the flowers exhibited at the St. Louis World's Fair for 80 days. L. F. DINTELMANN, Belleville, Ill.

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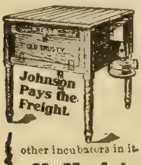

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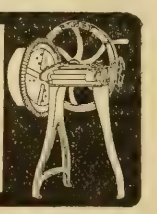

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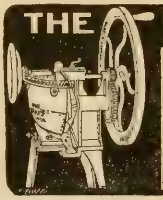

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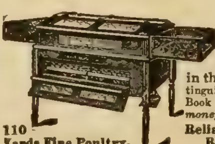

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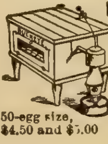

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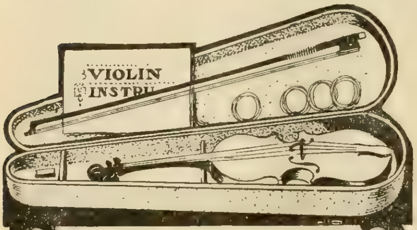

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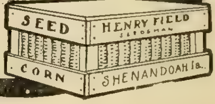

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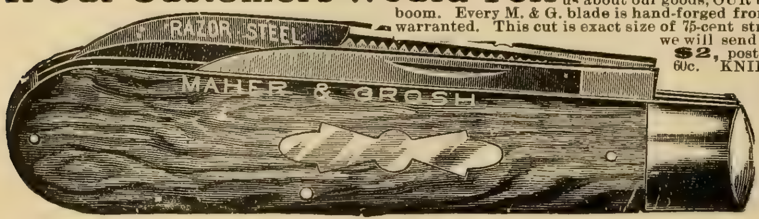

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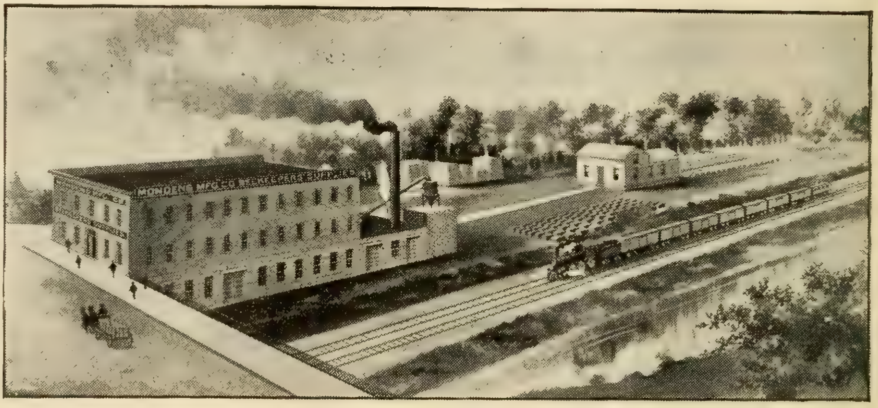

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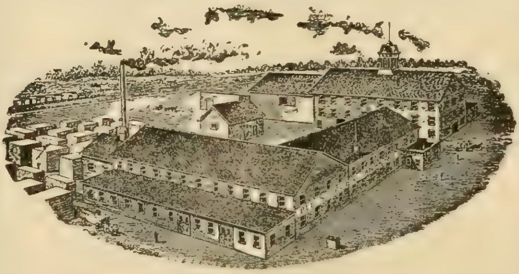

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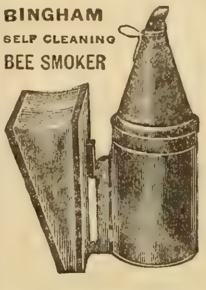

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SPECIAL NOTICE

Special Notices By Our Business Manager

ROOT'S AUTOMATIC REVERSIBLE HONEY-EXTRACTOR.

We have got it at last. What? An automatic reversible honey-extractor that will reverse the pockets while in motion by simply pressing on a lever. The extractors are no larger than the Cowans, and reverse without bang or slam, providing the directions are followed. They are equipped with street-car band-brake, noiseless gearing, gearing on top of the reel out of the honey, and out of the way of putting in and removing the combs. We have the four-frame size all ready for delivery. Six-frame, eight-frame, and two-frame sizes will be ready shortly. Price will be only $2.00 above the regular price for two, four, six, and eight frame Cowan extractors respectively.

This is the invention of Mr. Frank Marbach, the foreman of our machine-shop, and is so far ahead of anything else that has ever been devised that we think it will crowd everything else out of the market in the near future.

Special Notices by A. I. Root.

AUTOMOBILES AND THEIR FUTURE.

The *Baltimore Manufacturers' Record* is credited with the following statement: "During the last twelve months our automobile output exceeded in value all the locomotives built in America by $20,000,000, and the industry is scarcely out of its infancy." And yet the Philadelphia *Farm Journal* continues to urge farmers to fight its advance and progress.

OUR CEREALS IN AMERICA.

The above is the title of a most valuable new book published by the O. Judd Co., by Prof. Thomas F. Hunt, of Cornell University, New York. It is a volume of 500 pages, with over 100 new and original illustrations. The greater part of the book is devoted to wheat, as a matter of course. A large part of the remainder of the book is devoted to corn; but oats, barley, rice, and sorghum (Kafir corn) are also treated. The most interesting chapter to bee-keepers is probably the short one on buckwheat. The only reference covering buckwheat *for honey* is the following: "It is highly prized for bees, buckwheat honey having a recognized place in the market." The whole chapter on buckwheat contains only eleven pages. The price of the book is $1.75 by mail, or we can supply it from this office.

TUBERCULOSIS IN THE UNITED STATES.

McClure's Magazine for January contains a most able article on the above disease that I wish might be read by every man, woman, and child in the United States—and in the whole world for that matter. The disease is not only preventable, but curable if taken before it is too late; and the whole secret, as with typhoid fever and a long list of other diseases, is in the line of sanitary cleanliness. The patient does not need to go to another part of the world. The whole matter centers in the homes we live in, especially our sleeping-rooms. Either sleep outdoors or with your windows open to such an extent that it is almost equivalent to being outdoors. And above all do not spit on the floors and sidewalks. Consumption is not contagious if the above points are heeded.

By the way, there is another article in that same magazine on lynching in America that everybody ought to read. Perhaps I should apologize somewhat for my severe censure on *McClure's Magazine* a few weeks ago, and perhaps a little indirectly on our good pastor for quoting from the above magazine in his sermon. Instead of banishing the magazines from the home that contain things objectionable, a little protest from a good many people might enable us to hold fast to the good and banish the evil. By the latter I mean stories that seem to encourage intemperance, profanity, etc. *McClure's Magazine* has given us some of the best up-to-date articles on health and sanitation, including respect for the enforcement of law, that have ever been given to the world.

"HOW TO MAKE DOLLARS OUT OF WIND."

I very much enjoy looking over circulars from manufacturers of different things, especially farm machinery. I like to hear what an energetic, up-to-date man has to say in defense of the wares he makes or sells. When I saw the above heading on a circular I supposed it meant they had a windmill for sale. Not so. It is a fanning-mill. And then they go on to tell the importance of planting not only clean seed, free from weed seeds and everything else, but the importance of planting the largest and best grains. This last is a wonderful item in getting big crops. I have no doubt it will pay the farmer well to hand-pick all the grains he plants or sows—that is, if there is no better way. Our experiment stations have again and again demonstrated that the crop can be largely increased by planting only the largest and best seeds; and in the matter of getting rid of weed seeds, T. B. Terry tells us of spending stormy days with hired help in picking over his seed wheat. Of course, he did every thing with the fanning-mill that he could first. Then he hand-picked it to be sure he did not introduce on his premises any new and pernicious weeds; and Terry is not only a model farmer, but he makes *money* in his farming. Get the fanning-mill first, and one of the best up-to-date machines; then if you want to beat everybody else on a crop, spend the stormy days of winter and the long evenings in sorting out the best seeds to plant. This is taking it for granted that you do not leave the other things undone, such as underdraining, getting out stumps, leveling your land, turning under green crops, etc.

MY FLYING-MACHINE STORY.

For 32 years I have been ransacking the world—that is, so far as I could consistently—watching periodicals of almost every sort, and leaving no stone unturned to furnish information of interest and value to the readers of GLEANINGS. I have especially tried to have our own journal up to date in scientific matters; and until the past summer I have made haste to present *at once* to our readers every bit of information I could get hold of. In short, I have had no secrets whatever that I have withheld. But for the first time in my life, during the past summer I have been under a promise of secrecy. When the Wright brothers kindly permitted me to be present while they were making preliminary experiments they especially desired I should keep to myself, at least for the time being, what I saw. I recognized the justice of it, and of course assented. But it was a very hard task for me to keep my tongue—or pen—still when I knew the great outside world knew so little (or nothing) of what was going on. Scarcely a dozen people in this whole universe knew what *I* knew, but I could not tell it. I have thrown out some hints, you may remember, of what was going on. But one of the brothers suggested "the best way to keep a secret is to avoid letting anybody know you *have* a secret to keep." We are told it is hard for *women* to keep a secret, and I think I must be to some extent feminine in my make-up. Well, just before Christmas my heart was made glad by a letter informing me that, as the experiments for 1904 were probably ended, I might tell the world what I knew about the flying-machine, and therefore I have been made happy. Yes, to-day, Dec. 26, I am not only enjoying a happy Christmas but I feel just like saying "A merry and a happy Christmas to you all." I hope you will enjoy my story about the flying-machine—as much as I enjoyed being out in that big field with the Wright brothers many times during the past summer and fall, watching that wonderful creation of the hand and brain of those two men, while it "learned to fly," very much as a young bird just out of the nest learns by practice to use its wings. A picture of the flying-machine up in the air will appear in our next issue, nothing preventing. We could not get it ready for this one.

THE GENUINE MANN APPLE.

The Mann apple is a large dark-green apple, very solid, and is not fit for use until April or May; then it is golden in color and well flavored. Often spots of rot develop before the apple is fit to eat, and they have to be sorted over often. J. H. FITCH.

Bedford, Iowa.

[If the above is correct, what we have is not the Mann apple at all, and the little white apple we all prize so much seems to be an apple without a name.]

Convention Notices.

The thirtieth annual meeting of the Vermont Bee-keepers' Association will be held at the parlors of the Addison House, Middlebury, Vt., Jan. 12, 1905.
Shoreham, Vt. W. G. LARRABEE, Sec.

A bee-keepers' institute under the auspices of the New York State Bureau of Farmers' Institutes will be held in connection with the winter meeting of the Cayuga Co. Bee-keepers' Society at the rooms of the Business Men's Association, Auburn, N. Y., Jan. 12. N. E. France, of Platteville, Wis., is expected to be present.
Union Springs, N. Y. J. W. PIERSON, Sec.

The Fulton and Montgomery Counties Bee-keepers' Society will hold its next meeting at Amsterdam, N. Y., on Thursday, Jan. 19, in connection with a bee-keepers' institute. Arrangements have been made with F. E. Dawley, Chief of the Bureau of Institutes, to furnish Mr. N. E. France, General Manager of the National Association, as the principal speaker, and all are cordially invited to come. This will also be the annual business meeting of the society.
West Galway, N. Y. T. I. DUGDALE, Sec.

TEXAS BEE-KEEPERS.

We have before the legislature a pure-honey law and a petition for a liberal appropriation to carry out the foul-brood law that we already have. We want all to write two letters each, one to his Representative and one to his Senator, endorsing both measures, and asking his support for both. Then write me a ringing letter in a few words, endorsing the laws; these letters will be presented to the legislature with our petition for what we want. Remember, only a few minutes' time are required in which to write your State Senator and Representative, and a few words to me; and if all will do this it will help wonderfully. F. L. Aten, Round Rock, Texas, is chairman of a committee to raise funds to defray the expenses of legislative committee appointed by the State association; and any contributions sent him will be thankfully received. Let us be up and doing. H. H. HYDE,
Assistant Secretary, and Chairman Committee of Statistics, Texas Bee-keepers' Association.
San Antonio, Texas, Jan. 1.

NEW YORK BEE-KEEPERS' INSTITUTES AND MEETINGS.

A series of bee-keepers' Institutes and meetings will be held in this State as follows:
Canandaigua, Jan. 9. 10. Romulus, Jan. 11.
Auburn, Jan. 12. Cortland, Jan. 13.
Syracuse, Jan. 14. Fulton, Jan. 16.
Watertown, Jan. 17, 18. Amsterdam, Jan. 19.

Mr. N. E. France, General Manager of the National Bee-keepers' Association, has been engaged to address these institutes by the State Department of Agriculture, through its Bureau of Farmers' Institutes. Moving pictures of actual operations in a bee-yard together with a set of new stereopticon slides will be shown at evening sessions at each of the meetings. The moving pictures will show the actual hiving of a swarm, shook-swarming, driving a swarm, opening and closing hives, how bees work, how they they clean their antennæ, feed each other, besides many other operations too numerous to mention. The stereopticon-slides are nearly all new, and many of them in colors. Special reference will be made to Western bee-keeping in the great alfalfa-growing regions. This evening work will be well worth seeing.

The annual convention of the N. Y. State Association of Bee-keepers' Societies will be held in the City Hall, Watertown, January 18th, at 10 A. M., following the meeting of the Jefferson County Society on the 17th, at which, in addition to the regular speakers, delegates from all affiliated societies, and many progressive bee-keepers of this and adjoining States are urgently invited, and many are expected to be present. Officers of all local societies will please see that special invitations are extended to the teachers and pupils of the public schools of the several localities, as well as to the general public to attend. W. F. MARKS, Pres.
C. B. HOWARD, Sec.
New York State Association of Bee-keepers' Societies.

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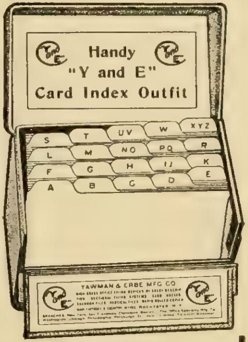

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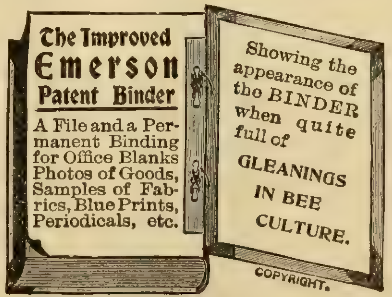
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Style C binder, each 50 cts. Postage extra 10 cts
Style D binder each 75 cts. Postage extra 15 cts
If you wish to bind your 1904 numbers as well as 1905, and purchase two binders, we furnish you *free of charge*, such numbers of GLEANINGS as you have lost and need to complete the volume. Mention where this offer appeared.
The A. I. Root Company,
Medina, Ohio.

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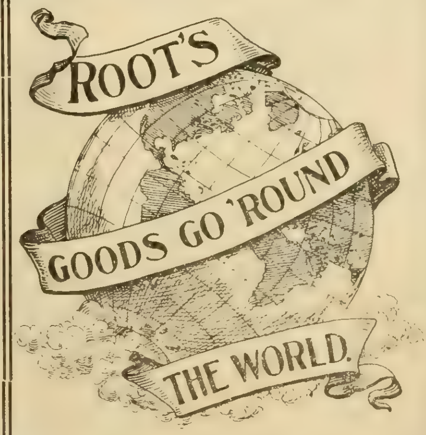

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is now ready to mail. If you wish a copy at once drop us a postal. It takes some time to print and mail to our list of 250,000 bee-keepers.

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AT SYRACUSE, NEW YORK.

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Bee-keepers
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October---6 per cent
November---5 per cent
December---4 per cent
January---3 per cent
February---2 per cent

This applies only to Hives, Sections, Smokers, etc.

We buy comb and extracted honey; if you have any to offer, state kind, quantity, and lowest price delivered here.

We also have a large supply of honey always on hand, in cans and barrels. Should you be in need of any, let us quote you prices.

How About a New Incubator this Fall?

We have them on hand, and can ship promptly; send for catalog if interested.

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New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
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Everything for the Bee-keeper,

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We are prepared to furn[illegible] promptly a full [illegible] supplies, choice ne[illegible] just from the facto[illegible] w and secure our [illegible] per [illegible]nt January Discount for Cash Order. Catalog free. Correspondence solicited. . . .

HOWKINS & RUSH,

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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

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The kind that comes by using the best hives, the best sections, the best of everything (Root's Goods).

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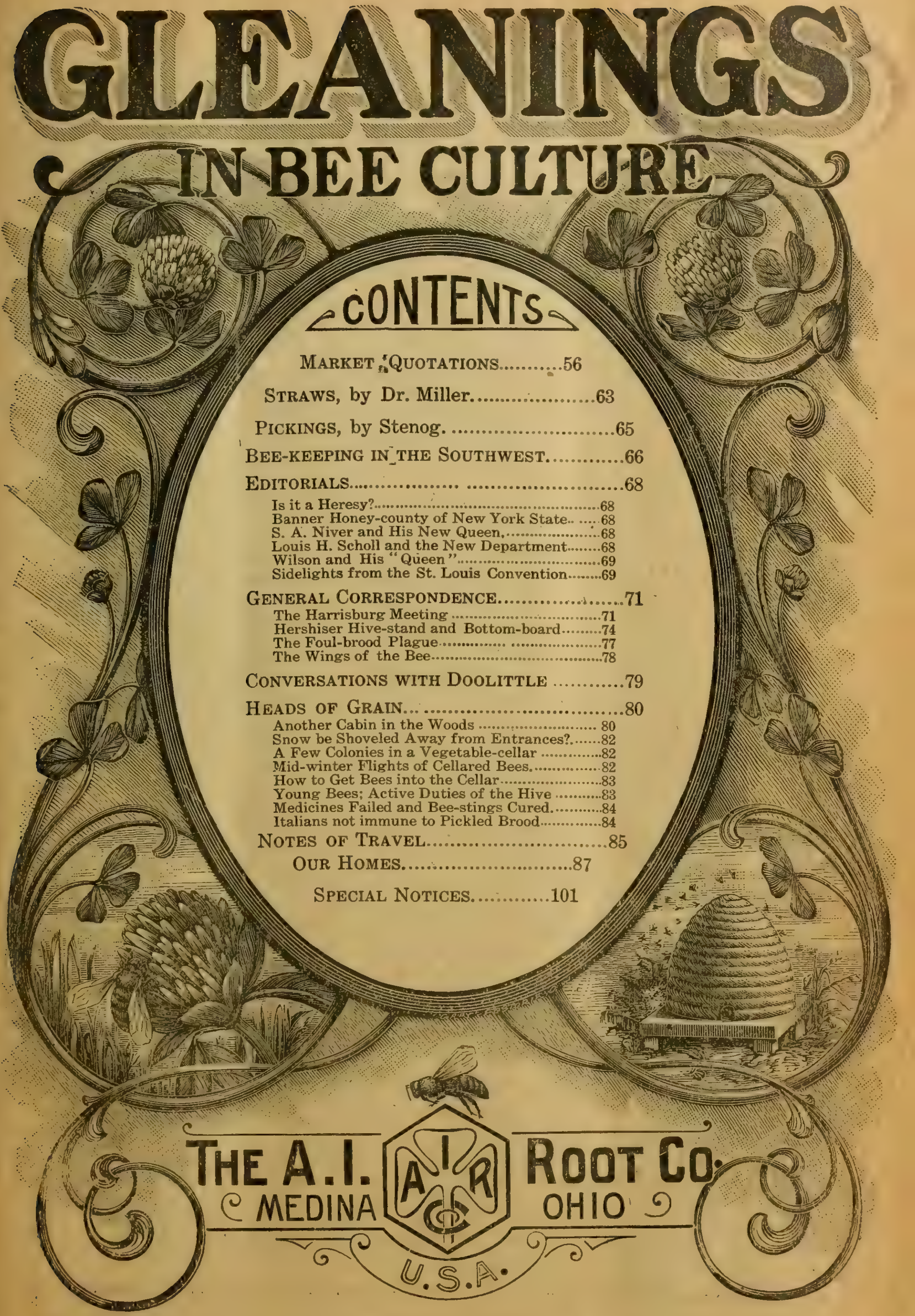
Volume XXXIII. JANUARY 15, 1905 Number 2

GLEANINGS IN BEE CULTURE



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The goods we sell are made in Ohio. You live in Michigan.

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Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

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Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

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Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

New York.—The market on comb honey is decidedly dull; and while there is no stock of dark and buckwheat to amount to much, all grades of white honey are plentiful, and for the present we can not encourage shipments. We quote fancy white at 14; No. 1, 13; No. 2, 11@12; buckwheat, 10. Extracted honey is in fair demand with abundant supplies, and a weakened tendency is noticeable in the market. We quote white at 6@6½; light amber, 5½@6; dark, 5@5½; Southern, 52@55 per gallon. Beeswax firm at 29.

Hildreth & Segelken,
Jan. 9. 265-267 Greenwich St., New York.

Toronto.—Honey market here is practically unchanged. The hope that high prices would be realized later on may have caused some bee-keepers to hold their honey back. So far as we can learn high prices have not been realized. There does not seem to be a great deal of comb honey in the market at present, but evidently plenty to supply the demand, as there is very little demand for it. Prices at present are from $1.50 to $2.00 per dozen. Extracted, 7½@8. Some large lots of extracted honey have been sold at 7c, and even less, to manufacturers of biscuits, tobacco-factories, etc.

Jan. 10. E. Grainger & Co., Toronto, Can.

Buffalo.—Since the holidays honey is selling pretty slow. The demand will, no doubt, be pretty slow from now on, for there seems to be quite a good deal of honey in the hands of the producers We quote fancy white comb, 13½@14; A No. 1, 13@13½; No. 1, 12@13; No. 2, 11@12; No. 3, 10@10½; No. 1 dark, 10@11; No. 2 dark, 9@10. Extracted, white, 7@7½; dark, 6@6½. Beeswax, 30@32.

W. C. Townsend,
Jan. 9. Buffalo, N. Y.

Kansas City.—The demand for comb honey still continues light, as most of the retail dealers were stocked up before the holidays on $2.25 honey, of which there were two cars sold here at that time. We look for a better market in the near future. We quote fancy comb, 24 sections, $2.50; No. 1, $2.25. Extracted, white, 6@6½; amber, 5½@6. Beeswax, 28@30.

C. C. Clemons & Co.,
Jan. 9. Kansas City, Mo.

St. Louis.—Since our last no change occurred in the honey trade. The demand is very slow for comb as well as extracted. We quote as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11; broken or leaking honey, 7@9. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and Southern honey, in 5-gallon cans, 5½@6; Southern in barrels, 5@5½. Beeswax, prime, 28½ per lb.

R. Hartmann & Co.,
Jan. 10. 14 So. Second St., St. Louis, Mo.

Milwaukee.—During the past month receipts of honey have been small and the demand dropped off very much. It seems that eaters of honey have satisfied their desire for sweets and candy; thus the sales have diminished somewhat. The supply is fair in all grades, and we continue to quote fancy comb, 14@15; No. 1 comb, 12@13. Extracted, in barrels, cans, or pails, white, 6½@7½; dark, 6@7. Beeswax, 28@30. A. V. Bishop,

Dec. 28. 119 Buffalo St., Milwaukee, Wis.

Toledo.—The market on comb honey is dull at the present time, with a supply on hand; the price remains the same as at the last quotations. Fancy white clover, 13½; No. 1, 13; amber, 12. Extracted white clover, in barrels, 6½@7; in cans, 7½@8½. Beeswax, 26 and 28.

Griggs Bros.,
Jan. 7. Toledo, Ohio.

Albany.—Honey market dull at unchanged prices; stock not large and will work out all right. We quote fancy clover, 14@15; No. 1, 13@14; mixed, 12@13; buckwheat, 10@12. Extracted, enquiry improving some. A Jewish holiday demand soon begins. We quote buckwheat, 6; mixed, 6@6½; white, 6½@7. Beeswax, 28@32.

MacDougal & Co.,
Jan. 8. 375 Broadway, Albany, N. Y.

Philadelphia.—Our market is unchanged from last quotations, and trading light. We quote fancy white 15@16; No. 1, 13@14; amber, 11@12. Extracted, white, 7@8; amber, 6@7. Beeswax, 26. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Jan. 9. 10 Vine St., Philadelphia, Pa.

Boston.—The market is without change since last writing. The demand continues light, and the supply is more than ample. We quote as follows: Fancy white, 16; A No. 1, 15; No. 1, 14. Extracted, 6@8, according to quality. Blake, Scott & Lee,

Jan. 9. 31-33 Commercial St., Boston, Mass.

Schenectady.—Market quiet, and stock moving very slowly. A concession on prices is necessary to effect a sale. We look for an improved condition after merchants get through taking account of stock and ready for the new year's business. Chas. McCulloch,

Jan. 7. Schnectady, N. Y.

Chicago.—At present the demand is light for all kinds of honey, but about the end of this month there is usually a more active trade. No. 1 to fancy white comb, 12@14, according to body and flavor; amber grades, 9@10. Extracted white, 6@7; amber, 5½@6½. Beeswax, 29@30.

R. A. Burnett & Co.,
Jan. 7. 199 South Water St., Chicago, Ill.

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DENVER.—Market has been very dull since the holidays on both comb and extracted honey. There is plenty stock in this market to meet local demand until new crop comes on. Strictly No. 1 white, per case of 24 sections, $2.50; off-grade stock, $2.25. Extracted honey, 6¾@7½ per pound. We pay 25c per pound for clean yellow wax delivered here.
THE COLORADO HONEY-PRODUCERS' ASS'N,
Jan. 20. Denver, Colo.

CINCINNATI.—Since our last report was published the price of extracted honey has advanced, no doubt acting in sympathy with the sugar market. We quote amber extracted, in barrels, 6@6½; white-clover extracted, in barrels and cans, 6½@8½. Fancy comb honey, 13@14. Beeswax, 28.
THE FRED W. MUTH CO.,
Jan. 9. 51 Walnut St., Cincinnati, O.

SAN FRANCISCO.—Honey, new crop comb, per lb., 10@13. Extracted, water white, 7; light amber, 6; dark amber, 5. Beeswax, per lb., 28@29.
ERNEST SCHAEFFLE,
Dec. 25. Murphys, Cal.

FOR SALE.—Extracted clover honey in barrels, kegs, and cans. Write for price. Sample, 7c.
JULIUS GENTZ, Shawano, Wis.

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FOR SALE.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—A few 160-lb. kegs of buckwheat extracted honey. Sample free.
EARL RULISON, Esperance, N. Y.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Clover extracted honey in cans or barrels; send sample, and state quantity, whether in barrels or cans, and price delivered at Chicago or Medina.
THE A. I. ROOT CO., Medina, O.

WANTED.—Buckwheat honey in kegs or cans. Send sample, and state price delivered at Medina, New York, Chicago, or Philadelphia. Mention quantity you can furnish. THE A. I. ROOT CO., Medina, O.

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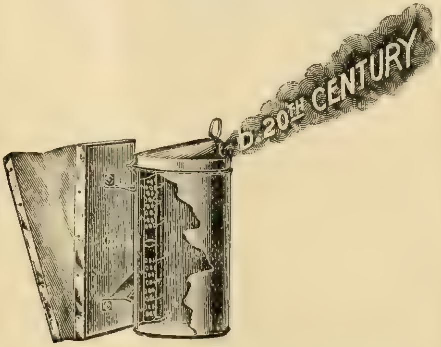

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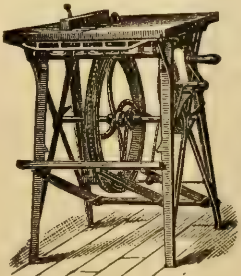

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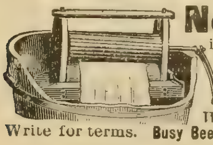

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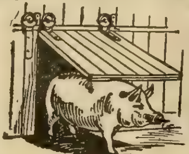

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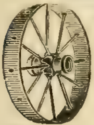

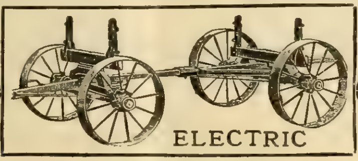

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G. M. Doolittle, C. P. Dadant, Prof. A. J Cook

(of New York State) (of Illinois) (of California)

Will each write regularly for the columns of the weekly AMERICAN BEE JOURNAL for 1905.

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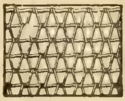

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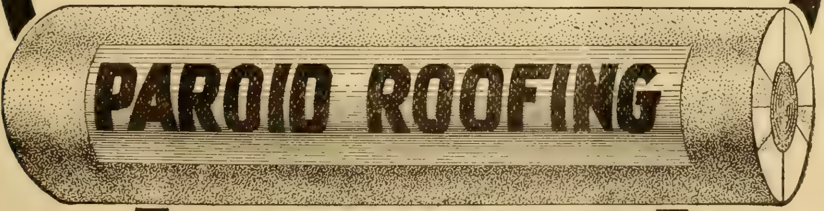

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Vol. XXXIII. JAN. 15, 1905. No. 2

Stray Straws

By Dr. C. C. Miller.

"A Subscriber," page 26, says, "comb honey should be judged by appearance only. . . Flavor I would not consider at all." Oh, my! my! my! isn't taste the chief consideration when folks buy things to eat? He also says, "Most people prefer honey in the crystallized or granulated condition." Perhaps in New Zealand, but not on this side, my good friend.

"Some experts" are asked their opinions of plain sections in *American Bee Journal.* Ten have never tried them, two of the ten being favorably inclined; six who have tried them have no preference for them; five prefer them. Secor likes them in supers but not in shipping-case. Stachelhausen likes them, but finds some talking necessary to get his customers to accept them. [A few years ago the testimony was decidedly against spaced frames of any sort; but at the present rate it will not be long, I think, before the great majority will prefer some one of the various forms. Plain sections will run the same gauntlet, and I believe they will come out the victor in the end.—Ed.]

A sunny day, with thermometer at 44, came Dec. 31, although a little windy, and I carried one colony out of cellar. The bees didn't seem to care to fly, although it went to 45 degrees in the afternoon. I think not more than two or three bees at any time flew at the same time. On the same kind of a day in April I should have expected to see the entire population outside. But after 44 days' confinement they didn't need any flight. [As you know, I do not attach very much importance to bees having a flight very early in winter. As you say, March and April would show a decided difference; but a temperature of 45 is a little too low to get much flying. In order that our bees may get the best cleansing we prefer a day when it is 65 to 70 at noon, with the sun shining. With a temperature of only 45 the bees may fly long enough to get chilled and not get back. They are confused as to their entrances somewhat, and it takes time for them to get back.—Ed.]

A friend in Cuba sent me by mail a bee-hat that I wore all summer with great satisfaction. It is made of tough palmleaf, so tough that it came done up in a solid wad without a single strand being broken; but it had scarcely any semblance of a hat till after much coaxing it was got into shape. Comfortable, durable, cheap—it would be a good thing if they were thrown on the market. [We are all curiosity to know the shape and character of that hat. Say, we have not seen a picture of you very lately. Suppose you go to your local artist in Marengo and have him "take" you with that hat on, togged out in your regular bee-suit. We will pay the bill. I know our readers would like to see your smiling face, even if they can see only a little of it under that hat.—Ed.]

Testimony as to the efficacy of bee-stings in rheumatism is conflicting. Possibly it would be less so if the treatment were always as thorough as that practiced by the German physician, Dr. Terc, whose experience includes a series of years. As far back as 1888, as reported in *Deutsche Imker*, he had treated 173 persons, using about 39,000 stings, an average of 225 stings to each patient! One patient alone received 5600 stings. Beginning with two or three stings a day, the number reached 20, 25, and even 50 a day. In all he has treated some 500 cases, the treatment continuing one, two, and even three years. According to that, one should not expect a cure from an occasional sting at irregular intervals. [While the testimony in our American journals may be somewhat conflicting, yet it shows such a strong leaning toward the value of the remedy that I may think we may safely conclude, in many cases at least, that bee-poison, when properly administered, does bring about certain and positive relief. For further particulars see Pickings, p. 740, 1904. —Ed.]

WM. A. STEWART, p. 27, quotes Doolittle as favoring combs solid full of brood, and says, "I do not want the brood-combs *quite* in that shape"—wants room for a little honey and pollen. Don't worry, friend Stewart; you're not likely ever to have a brood-chamber so filled with brood that not a cell is left for honey or pollen. You've seen "a room full of people," haven't you? Well, that doesn't mean that the room is entirely full, the people being piled up on top of one another clear up to the ceiling, nor even that they're packed so closely together that there isn't room to move. So in the ordinary language of bee-keepers a hive with brood-combs filled solid full of brood is never meant as having every cell in the hive filled with brood; especially as such a thing never happened and probably never will.

WHEN BEES are taken out of cellar, unless smoked they fly out and sting on their way to their stands, says G. M. Doolittle, p. 15. When my bees are carried out, smoke is always on hand, ready to be used if needed; but generally no smoke is used, and not a bee comes out of a hive until some time after it is placed on its stand. Perhaps one reason for the difference is that the cellar is thoroughly aired all night before taking out. Very likely another difference is that he uses a wheelbarrow and mine are carried. Possibly it might be better to use the wheelbarrow and more smoke. [We always carry our bees instead of wheeling them. One man on each side makes the burden easy, and the actual time consumed in moving a hundred colonies from a cellar is very small comparatively. A wheelbarrow with a pneumatic rubber tire and nice easy springs might enable *one* man to move the bees in and out as easily as *two* men could carry them.—ED.]

THE DOOLITTLE PLAN of queen-rearing has not fulfilled the expectations that were awakened with regard to it, especially by the endorsement of certain German theorists. Even American bee-keepers are allowing it to sink into "innocuous desuetude," concluding that for queens of good quality nothing can equal those obtained from after-swarms. Such, in substance, is an item going the rounds of the German bee journals. Our good friends in the "Vaterland" may be assured that some one has had the floor who is little familiar with American bee-keeping. The Doolittle plan, under whatever name or with whatever variation, is more popular to-day than ever before. For every queen reared from an after-swarm by queen-breeders, there are probably fifty reared from Doolittle cell-cups; and, moreover, there is no lowering of the standard as to quality. [Yes, indeed. All the modern systems of queen-rearing, unless it be that of Mr. Alley, are based on the principles laid down by Mr. Doolittle in his book some years ago. The Doolittle system is very much alive, only it has been modified and probably improved by Pratt, Laws, Pridgen, Phillips, Wardell, Quirin, and others.—ED.]

MR. EDITOR, I beg your pardon. If I had looked up, as I ought to have done, just what Mr. Marks said in Mr. France's report, I would have understood you better on p. 1149. If I knew nothing of Mr. Marks' views except from a hasty reading of what he there said, the likelihood is that I would think just as you, that he considered the fight against adulteration of less importance than furnishing funds to quarrelsome bee-keepers to help them out in their lawsuits. I have good reason, however, to know that he favors cutting in two the expense of litigation; and I am sure, if all is done that he suggests in the way of fighting adulteration, that matter will not be neglected. I am not authorized to interpret Mr. Marks' words for him, but if you will take the words "prime" and "secondary" in the parts you have quoted, page 1149, as referring to time, it will give quite a different meaning. The "prime" object of national organization had reference to litigation. Indeed, it was the only object for some time. The work in that direction has been so well done that it may now be allowed to sink into the background, and a matter "secondary" in point of time come to the front and receive more attention and more money. [I do not know *how* I knew, but I knew that Mr. Marks himself was in favor of giving more attention to adulteration and less to bee litigation. My purpose in referring to the matter, however, was only to influence the membership and the Board in a way that would put the insurance feature, as Mr. France puts it, in the background, and the fighting of adulteration in the foreground; for the Board must have the backing of the membership before it can feel that it can proceed along any line.—ED.]

THE LAW against adulteration can hardly be too severe; but it will be a cold day for bee-keepers if it is ever decided that honey-dew can not come under the head of honey commercially. It would shut most of us out of the market. My location is exceptionally free from honey-dew, but I never could sell a pound of honey if I had to swear it didn't contain a drop of honey-dew. "What! put honey-dew on a level with the best grade of honey?" Not a bit of it. But it is on a level, and above the level of some samples of honey, and should be sold on its merits, but not as adulterated. [The correspondence in our office shows there is a sentiment decidedly against having the chemists declare that honey-dew in honey is a foreign ingredient. I can not imagine any severer blow that could be administered to the bee-keeping industry than to have our chemists adopt a definition that would bar out honey-dew from honey. I have written several of our chemists, and hope our subscribers will flood their local chemists with letters offering their protests. Prof. H. W. Wiley, I am sure, is desirous of serving bee-keepers, and I suggest that our subscribers write respectful letters to him explaining how it would drive them out of the business if such a definition as was proposed should be adopted by the Department. Write to Prof. H. W. Wiley, Department of Agriculture, Washington, D. C., W. A. Selser, 10 Vine Street, Philadelphia, and Prof. E. N. Eaton, Chicago, Ills., or to any other chemist who may be connected with a pure-food department. If honey-dew were barred out, any of us might be subject to a fine and possible imprisonment for selling adulterated honey. Such a condition of affairs would drive two-thirds of the bee-keepers out of the business. There ought to be at least 20,000 letters sent in to the chemists to let them know the sentiment of the bee-keeping fraternity of the United States. Write any way, whether you have honey-dew in your locality or not. You do not know *when* your bees may gather some of the stuff, and *you* be made the victim of the law.—Ed.]

Replying to your footnote, p. 1143, Mr. Editor, I was talking about wintering on p. 1055, but you asked a general question on the next page about the difference between honey and sugar syrup, and you will see that I answered it as such without reference to wintering, page 1099, where you will see that neither of us made any reference to wintering, although you were probably thinking of it and I was not. But let's get back to the original question, which is really a very important one, "Is good honey better than sugar syrup for wintering?" I'm frank to say I don't know. The testimony of Editor Reidenbach, page 1012, is pretty strong that the two colonies suffered from having sugar only. I'm sorry to say I don't remember how many other colonies there were, but my impression is that the number was considerable. But it is possible that there was some other trouble with those two particular colonies, leaving the question still open. Mr. Hutchinson, yourself, and others, testify that bees have wintered just as well on sugar as on honey. But do you know that the bees of any particular colony would not have been just a little more vigorous if they had had honey instead of sugar? A man who takes his daily dram of whisky lives to good old age with never a day of sickness; but does that prove that he would not have been better off with water in place of whisky? A colony comes out strong on sugar; but does that prove it would not have been better off with honey in place of sugar? Honey contains elements for building up tissue that are not contained in sugar, but is there enough wear and tear of tissue in winter to make the difference count? Can we have any positive testimony either way? [Of late years we have paid but very little attention to the question of winter food for bees, except that the honey in all cases should be at least a good table honey well ripened. We have wintered for years with a good grade of clover or basswood, and used this food right alongside of pure sugar syrup sealed in the combs. We have never had any choice. So far as we could see, one way was as good as the other. Very possibly if we had conducted the experiments along scientific lines, weighing and measuring, and noting exactly the conditions of the colonies in the spring, we might have seen a difference; but the difference, if any, was not sufficiently noticeable to call our attention to the matter.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

An interesting article on the uses of honey as practiced by the Arabs appears in *L'Abeille*, published in Algiers. The Arabs think the best honey in the world comes from Sicily. "It is the most perfect in point of taste, and its perfume is exquisite. No other honey is more savory, more richly colored, more unctious to the tongue. It granulates rapidly, but is dissolved by the use of a very moderate amount of heat. It is so thick that, by dipping the finger in it, it will form a thread of honey reaching to the ground, without breaking." In fact, that is the test among the Arabs as to whether honey is ripe enough to eat.

* * *

A Cleveland daily announces as something wonderful that a man now living in Canada is going to establish a bee-farm in Texas of 480 acres. Even if bees could be confined by fences that would not be a very large bee-range. Then the man is going to do what was never attempted before. He is going to import his queens from Italy! They will be so valuable as to be worth their weight in gold—that is, about 20 cents apiece if we take that statement literally. We are further informed that good queens from Italy range in price from $50 to $100. What a fine story was spoiled by the ignorance of that writer, when the truth would have served him much better! The whole matter was explained to the editor, but such trifling deviations from the truth do not seem to disturb him in the least.

* * *

What would the world do for sugar if the present supply from cane and beets were cut off? Yet we do not have to go far back in history to find that these two sources of sugar were of no use to mankind for that purpose. The extent to which honey took its place is seen from the following extract from "Joyce's Child's History of Ireland," quoted in the *Irish Bee Journal:*

> HONEY IN ANCIENT ERIN.
>
> There was no sugar, and honey was greatly valued; bee-hives were kept everywhere; and the management of bees was considered such an important industry that a special section of the Brehon Laws is devoted to it. The people used honey in a great many different ways. They basted roasted meat with it; it was used with salmon while cooking, and as a seasoning with all sorts of dishes. Often at meals each person had a little dish sometimes of silver, filled with honey, beside his plate

and each morsel, whether meat, fish, or bread, was dipped into it before being conveyed to the mouth. The people often mixed honey with milk, either sweet or sour, for drinking. From honey also was made a kind of liquor called mead, very sweet and slightly intoxicating. This was considered a delicacy; and a visitor was often treated to a drink of mead immediately on arrival. As bees were so abundant, beeswax, as might be expected, was turned to account for lighting purposes. In some of our old records we find wax candles mentioned as being used in the houses of the richer classes (in Dinnree for instance) long before the fifth century.

* * *

The general tenor of the European bee journals, especially French and German, at the close of the old year indicates much interest in all lines of apicultural progress. Great conventions are planned for the entire year; important experiments are being tried in bee manipulation and in curing bee diseases; new plans for disposing of honey crops are being warmly discussed; and as the years go by there is evident in Europe what might be called an Americanized way of doing things so far as bees are concerned. While the old straw skep holds its own fairly well in some places, especially in countries as cold as Germany, the square box is becoming more and more a familiar feature in pictures of German apiaries. The rapid intercommunication among nations to-day is causing them to be more and more alike. It would be quite impossible to judge from a photograph nowadays whether it represents a convention of German, French, Dutch, English, Irish, or American bee-keepers so far as clothing is concerned, as there is nothing characteristic about any of them so far as national garb is concerned. This leveling-down process indicates progress among all ranks, and is causing the thrones of kings to stand no higher than the rocking-chair of the peasant.

BEE KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS

INTRODUCTION.

By way of introduction I wish to say that, after some correspondence and a recent conference with the editor of GLEANINGS, arrangements have been made whereby the Southwest, that great portion of country of the United States so well known for its extensive bee-keeping and honey-production, will be favored with a department in this journal, and the writer will, for a time at least, fill the place of the editorial writer of this department.

The bee-keepers of the great Southwest ought to be glad of this favor of GLEANINGS, and I hope that they will appreciate it, as they surely will, and that they will all join in making this new department of much interest and value.

It shall be my endeavor to give to the readers items of interest as adapted more particularly to the Southwest, although occasionally other matters of interest to the readers, not strictly pertaining to bee-keeping in the southwestern territory, will be dwelt upon. But to make this department a creditable one I shall have to ask for the hearty co-operation of the bee-keepers. Write me about your experiences, or on any subject that may be of interest to the bee-keeping fraternity; and by boiling down such matter it can be used and imparted to others. Thus you will not only be benefiting others by giving your experience, but yourself by getting the experience of others in return.

* * *

Some of my bee-keeping friends may want to know where I have been located for the past several months, judging from the many letters to that effect, as some had written that it had been rather hard for them to keep track of me; therefore I thought a few words of explanation would not be out of the way here, especially since I want to hear from these friends occasionally since this department has been started.

Since the first of October I have been here in Columbus, Ohio, attending the Ohio State University as a special student in zoology, entomology, and botany, which are all related to bee-keeping. After March the readers will find me at my old place in the South, with the Agricultural and Mechanical College, at College Station, Texas, where the work in the department of entomology and the experiment apiary will be resumed. My address now is No. 76 West Frambes Ave., Columbus, Ohio, where I shall be glad to have you send your correspondence.

* * *

A question of great importance that should be kept before every bee-keeper is, "Have you ordered your necessary bee-supplies for the coming season? and will you be prepared for the honey-flow when it does come? Although many have had occasion to learn that it is good policy to prepare every thing ahead of time, yet there are many who will forget or neglect the matter, only to be caught again by a heavy honey-flow, but without supers for the bees to store it in.

Now is the time to get your hives, supers, foundation, and other supplies; and during these wintry days every thing should be made ready for next season's work. Therefore I ask again, "Have you ordered your supplies? and will you be ready for the honey-flow when it comes?"

* * *

It is gratifying to note the sentiment of the members of the National Bee-keepers' Association in favor of meeting in San Antonio, Texas, next time, and I am glad indeed that such is the case. Of course, it remains for the Executive Committee of the Association to decide upon the place; but I think it is safe to say that all the bee-keepers who can possibly do so may begin to prepare for a trip to Texas this fall, during the meeting of the National. The sooner you begin the better, and the more likely it will be that you will be there.

We have heard a great deal about the carload of bee-keepers who went to the Los Angeles meeting; but suppose there should be *two* carloads going to Texas. It seems reasonable enough. No matter how many or how few may come, however, the Texans will show you a good time, and preparations are already being made for the occasion.

The time of the meeting will most likely be in October, and during the time of the International Fair. This would be the most suitable time for several reasons, chief among them being that our weather turns a little cooler then, which, I presume, would be much appreciated by such great big fat fellows as our friends Dr. C. C. Miller, Hershiser, Root, York, Abbott, and Niver. Come, for you are invited.

❧

THE V EDGE ON HOFFMAN FRAMES.

This subject has received much attention in the bee journals of late, and both sides of the question have been brought forward. In spite of all this, who can decide which is the better? If we should judge by the many reports in favor of the square edges on the end-bars of Hoffman frames, we might draw our own conclusions in their favor, and pronounce the V edge as unnecessary and only an extra expense. But why are others in favor of the V-edge end-bars instead of the square ones? They have their reasons.

In my opinion, locality and conditions have a great deal to do with it. There was a time when I had only my home yard of about 65 colonies on both styles of frames, with square edge, and with V-edge end-bars, and after having tried them side by side for about six years I could not see any advantage in having the V edge on the frames.

Even in 1901, when the editor of GLEANINGS visited me, and we went through several colonies in the apiary, this matter was discussed, and I held the same opinion. In fact, I showed Mr. Root that there was no use for the V edge, a fact that seemed to be plain when the proof was right before you. Since then, however, I have been compelled to change my views, for several outyards that were established later disproved them. Locality and other conditions made the difference.

In the first locality, at my home yard, propolis was very scarce, so that no trouble from this source was encountered. At the outyards propolis was plentiful, however, and it was not long before it collected on the square edges to such an extent that the frames could not be crowded together properly. The edges being flat and wide, the propolis would in time accumulate with each handling; and every time the frames were replaced it would become packed into a solid mass. With the V edge this was overcome to a certain extent, as it cut through when the frames were crowded together, and much better spacing can be obtained. Therefore, to be on the safe side, and to guard against such trouble, I have now decided in favor of the V-edge Hoffman frame.

❧

MONEY IN CANDIED HONEY.

The writer had the pleasure to help in putting up candied honey for the retail trade while visiting at the establishment of The A. I. Root Company at Medina, and the result is that I am very much impressed with this idea of disposing of extracted honey after it has granulated. The editor of GLEANINGS has mentioned the method employed, in several issues, so I will not go into details here. I would ask the readers to read again what is said on pages 224, 276, 331, 589, however, as it will pay you to do so.

The gist of the whole matter is that the trouble of candied honey is overcome. The labor, trouble, time, and expense of reliquefying candied honey is done away with; and instead the honey is sold in the candied state, and that at a greater profit. Something worth thinking about, is it not?

Whole cans of honey that have granulated solid are stripped of their tin, as it were, leaving a solid cake which is then cut up into small oblong bricks weighing about one pound or a little over. Each brick is then wrapped in paraffine paper, after which another sheet of strong paper is put on. These are then placed in small cartons, and the whole (the carton with its brick of honey) is neatly wrapped in a beautiful wrapper of light-tinted paper with appropriate printing in gold. This makes a dainty package of nature's sweets that catches the eye of every person, and they sell like hot cakes, and at a fancy price too.

So well did this way of putting candied honey on the market impress me that I actually wished I could be at my Texas home to give it a trial there. This being impossible, however, I hope that some of my bee-keeping friends may try it and report.

It works all right here in the North; but I am not sure it will do so in our southern country; but I am inclined to believe it can be done; and as our colder weather generally comes during January, February, and March, I should like to call the bee-keepers' special attention to this matter so that those who are in position to do so may give it a trial. Of course, it does not get as cold in the South as it does in the Northern States, and the winters are not nearly so long; but honey granulates very readily, and becomes solid and hard, so that it can be cut up into bricks, as mentioned above, very readily. The only question that I see would be whether it would stand up during the warmer days. This could be solved by a thorough trial, however. Perhaps cold storage could be resorted to, which seems quite feasible. Who is going to try it? and who will report on it? Try it in a small way and let us know the results.

Editorial
By E. R. Root

OUR apologies are due to our subscribers for the lateness of our last issue. Two attacks of the grip at just the wrong time kept E. R. R. at home when he could neither attend to editorial matter nor write the index. I am glad to report that I am very much better, and none the worse for the grip.

THE Central California Honey-producers' Association voted to disincorporate, not because of any lack of success or confidence in the management, as was stated in an exchange, but because its members desired to put themselves in close touch with a larger organization, national in its scope, now in process of development. Inquire of F. E. Brown, Hanford, Cal.

IS IT HERESY?

THE question now up for discussion is, whether mid-winter flights, toward the latter part of winter, of cellared bees, are advantageous or not. For many years the old heresy that a sick man needed to be bled until he had lost half his blood continued to hold full sway. Another old dogma was that patients suffering with fever should not be allowed to have water to drink. There is no doubt that the old physicians killed many of their patients by keeping both water and ice away from them. A certain dogma may have the indorsement of all the "authorities" and yet be all wrong. For years and years it has been considered bad practice to give cellared bees a mid-winter flight on a warm day, for cleansing. It is high time that we determine whether or not this teaching is like some others that have done such fearful mischief in times past.

THE BANNER HONEY COUNTY OF NEW YORK.

TOMPKINS Co., so I understand, has the honor of being the banner honey county of New York. Its output was over 236,000 lbs., or, figured in cars, it would be between seven and eight. When it is remembered that that county is only about 20 miles across it either way, these figures are somewhat remarkable; but perhaps it will be better understood when it is known that the largest bee-keeper in the world, probably, at the present time, Mr. W. L. Coggshall, has something over 20 apiaries within its borders. There are other counties in the United States that will show a larger output of honey, but these counties are as large as some whole States in the East. I refer to Los Angeles, San Bernardino, and San Diego, in California. All these central counties in New York yield immense amounts of honey. The territory is already overstocked, and it would be useless for an outsider to try to squeeze in.

HONEY-DEW IN HONEY.

IN one of Dr. Miller's Straws in this issue he strongly protests against a proposed definition that is now being seriously considered by the leading chemists of the country, that excludes honey-dew from honey. If such a definition is adopted it will be a most severe blow to the bee-keeping industry. There are many bee-keepers in the country who get a little honey-dew every year, and more still who get it occasionally, and it would be *simply impossible to keep it out of their honey.* A small amount of it does not hurt the flavor in the least. But honey containing such small amounts would be classed by the chemists as adulterated, and both the producer and the seller would as sure as fate come under the ban of the pure-food law. Such a condition would work untold harm to thousands and thousands of innocent people, and I hope our subscribers will utter a most mighty protest. Don't write to us, but to the *chemists* (see Straws), and ask them to leave the definition as it was, and tell them that honey-dew where it is gathered *can not be kept out* of pure bee honey. It will not do to delay this matter one minute.

I suggest that, in addition to the leading chemists, the government apicultural expert, Frank Benton, should be written to, for he, I am sure, would present the protests to the proper authorities at the Department. Address him, care Department of Agriculture, Washington, D. C. The chemists are our friends, and are willing to serve us; but they must be enlightened, and that speedily.

S. A. NIVER AND HIS NEW QUEEN; THE ORIGIN OF THE FENCE SYSTEM.

CARDS are out announcing the marriage of Mr. S. A. Niver, the honey-man, and Mrs. Alfaretta Hull Jahnke, on the 26th of December last. Mr. Niver, it will be remembered, was associated with Mr. Miles Morton, the man who for many years used the fence separator, and from whom the Root Company obtained the basic principles of the fences now sold by all the supply-manufacturers. It was Mr. Niver who, at the Buffalo convention, insisted I should go and see Mr. Morton. I protested that I hadn't time. "But you must come," he urged; "Morton has something that the bee-keeping public ought to know about," and I went. But for this visit the fence and plain-section system might not have been cataloged as they are in nearly all the supply catalogs of the country. Niver as well as Morton has contributed to the bee-keeping world something of great value.

Niver's specialty now is selling comb and extracted honey direct to consumers, more particularly to the foreign class. He told me when I saw him last he could make anywhere from five to ten dollars a day. So much for Niver. We do not know any thing about his new queen, but we extend to the pair the compliments of the season and our best wishes.

WILSON AND HIS "QUEEN."

HORACE GREELEY used to say, "Go west, young man." A. I. Root has often said, "Get married, young man." At all events there is one bee-keeper, Mr. W. H. Wilson, of Derby, Vt., who has recently taken Uncle Amos' advice. In commemoration of the event he sent a couple of photos taken by his "queen," as he calls her. One of the pictures, page 72, is suggestive of "sweetheart," for you know that all honey-producers have sweethearts, or would have if A. I. R. could have his way. Or the picture may indicate that the happy pair are enjoying their "honeymoon." In either event may their lives be those of honeyed sweetness, without a sting; and may he who has promised to love and protect her never be ashamed to call her "sweetheart," even when the silver hairs and furrows creep over the brow of that queen of his hive.

Mr. Wilson says that he has bought a good many queens, but this he positively avers is better than any five-bander he ever owned, for she is *all pure gold* you know.

Say, I do enjoy looking at those "smiles that won't come off." The only person who would envy them their happiness is the old bachelor who can't see any sense in the advice of the sage from Medina.

The other picture shows a corner in Mr. Wilson's bee-yard of some 80 colonies. Evidently a swarm had just been hived, or perhaps the queen's wing was clipped, and the swarm has returned and will shortly go in to see what's the matter. Mr. Wilson says his wife is not afraid of the bees; indeed, she is very much interested in them. She will take care of them, with his help, nights and mornings, for he works at a near-by granite-quarry.

LOUIS H. SCHOLL AND THE SOUTHWESTERN DEPARTMENT.

BEE-KEEPING among the Rockies has taken so well with our Western contingency that we have decided to have an editorial representative in the great Southwest, taking in the vast commonwealth of Texas—a State that has within its borders some of the best, if not the best, bee-paradises in the United States, and which promises in the near future to be one of the greatest honey-producing sections in the world. Its honey-producing territory is almost unlimited, and all it needs is railroads to push out into the unoccupied fields so that bee-keepers and ranchers can get their honey and crops to market.

In casting about over the field for a suitable man to edit this department I could think of no one better fitted than Louis H. Scholl, at one time editor of a bee paper himself, a close student of bee culture from boyhood up, and now a salaried instructor and experimenter at College Station, Texas, where apicultural experiments and bee-keeping are especially taught. He has consented, at least temporarily, to take charge of this department, and the same will appear once a month, alternating with Bee-keeping among the Rockies, by J. A. Green. They will not in the least conflict with each other, as they will occupy fields separate and distinct, although naturally, of course, both may write on the same subject and discuss the same question.

LOUIS H. SCHOLL.

By courtesy of the American Bee Journal.

Mr. Scholl has spent a few days with us, studying some phases of apiculture that have been especially developed in a large bee-supply establishment. He makes his editorial bow and acknowledgments in his department, which appears elsewhere.

SIDELIGHTS FROM THE ST. LOUIS CONVENTION; CAUCASIAN BEES, THE GENTLEST IN THE WORLD.

CONSIDERABLE was said at this convention for and against this race of bees. It was generally admitted that they were probably the gentlest bees in the world, but there was more or less difference of opinion as to whether they were excessive swarmers and otherwise undesirable. Mr. Benton said that, so far as he had tested them, he had found them to be good honey-gatherers, and so tractable that any thing one desired to do with bees could be done with them without smoke and without a veil at any time, early or late, whether they were getting honey or not. They could be brushed from the combs with the bare hand, or one could even hammer on the entrance and brush the bees from the entrance, and do any thing with them, no matter if the propolis snapped, and no matter if the time of day was undesirable. If you bothered them in the fall in bad weather they might occasionally sting. Mr. Abram Titoff, the Russian representative who has seen them in their native clime, confirmed what Mr. Benton had to say. But these bees had one fault, he thought, and that was, excessive swarming. "If you take away the queen-cells today," he said, "by to-morrow they will make twenty or thirty more." Mr. Kretchmer, who had lately traveled through Germany, gave a very unfavorable report of them. He said they had been represented to him as being stingless, but they did sting him all the same. They swarmed so much he was told that some were going to get rid of them.

Whatever might be their faults, the opinion was expressed that they could be kept in cities, with perfect impunity to the general public.

While on this subject it might be well for me to say that Mr. Titoff, who is with us, has already made arrangements to secure a number of these Caucasian queens direct from Russia. We will probably have some imported, as well as daughters from imported, ready for sale some time next summer. We expect the queens here in late spring.

HOLY-LAND BEES.

Mr. W. H. Laws, a queen-breeder at Greenville, Texas, spoke very favorably of these bees. He had not found them as cross as represented. This seemed to be at variance with the experience of some. Mr. Benton explained how this difference of opinion might arise. He said that the bees south from Mount Carmel were quite different from those north. The term had been invented by Mr. D. A. Jones to cover both types of bees. The first bees sold under that name were really hybrid crosses between Cyprians and Palestines. Those southward from Mount Carmel Mr. Benton called the Palestine, and those northward the Syrian races.

BABY NUCLEI.

Considerable discussion arose as to whether these were suitable for the ordinary honey-producer. Many thought not—that these little boxes of bees were very difficult to handle, even by experts. Some of the queen-breeders held the opposite view.

BLACK BROOD.

Some interesting discussions took place regarding black and foul brood in York State by representatives who were present. It was shown quite clearly that there were two diseases, one differing materially from the other. Mr. Stewart, one of the inspectors, stated that black brood first made its appearance in Schoharie Co. from bees brought from a Southern State. It was confined to a small area, but soon alarmed apiarists by the great mortality it caused among bees. Unlike foul brood it gave off a sour disagreeable smell, and unlike foul brood too it refused to be drawn out in a rubberlike string. The effect of the disease varied greatly in different apiaries as well as in different colonies.

TREATMENT.

His method of treatment was as follows: All apiaries should be isolated as much as possible. Colonies should not be set close together. Diseased bees should be shaken on clean frames of foundation as soon as discovered, and fed a little sugar syrup for a week to restore their vitality. He deemed it advisable to establish a hospital apiary in some isolated place for the treatment of the diseased colonies.

Mr. Stewart also explained that Italians and some of the newer races of bees would stand the disease much more readily than the old-time blacks. In one apiary in particular of 60 colonies, 59 of them were black and one was Italian. The 59 blacks all died from the disease, while the one Italian remained healthy, and stored a good lot of sections besides. So noticeable was this immunity of the yellow stocks that inspectors had been in the habit of advising those who had black and hybrid bees to Italianize as soon as possible, and introduce Cyprians or Carniolans – any thing in preference to the old-fashioned black.

W. D. Wright, one of the inspectors, sent a paper in which he called attention to the fact that in Quinby's book of 1865 the statement was made that "Italians are very much less subject to foul brood than blacks;" that "since their introduction," quoting from Mr. Quinby, "in my apiaries the number affected with this disease has diminished five-sixths." Other evidence was introduced showing how the yellow races were more proof against foul brood.

A NEW BEE DISEASE.

Much testimony was introduced, showing that a peculiar malady among bees had made its appearance in various parts of the country. Thousands of bees would be found in the grass, climbing up on timothy heads, or hopping from one point to another, being able to fly only two or three inches, and then run in the grass as if they were in a hurry to get somewhere. Some reported that this trouble appeared before the honey-flow, and others after. It would come suddenly, and disappear as suddenly. Indeed, in one case Mr. Benton sent an expert to look over an apiary that had had this trouble, and before the man could arrive the malady had entirely disappeared. Whatever it was, it was somewhat serious. In some cases it was reported that whole apiaries had been depopulated of half their strength within two or three days. When this occurred in the honey-flow, it put a stop instanter to honey-production.

BEE PARALYSIS.

A very interesting and valuable paper on paralysis was read by Mr. O. O. Poppleton; but as we have already given his process in full in these columns I will not rehearse it again here. There can be no question that Mr. Poppleton knows more about this disease than any other living man in this country; and the fact that he has two methods of cure, either of which is reliable, is very suggestive at least.

GENERAL
CORRESPONDENCE.

THE HARRISBURG MEETING.

Foul Brood and Foul-brood Legislation for Pennsylvania; the Supply Business.

BY WM. A. SELSER.

The first annual meeting or second regular meeting of the Pennsylvania State Bee-keepers' Association met at Harrisburg, Dec. 6. The meeting was called to order by Prof. H. A. Surface, head of the Division of Zoology in the Agricultural Department; Rev. D. L. Woods, of Muncy, Secretary. There was quite a large representation from all over the State, and names came pouring in from a large section as new members at the first session. Hon. Mr. Martin, Deputy Secretary of the Department of Agriculture, joined the Association, and became exceedingly interested in all its detail work, and offered to assist, through his Bureau, as far as possible, the work in every way. He further promised that, if the Association would furnish the speakers, he would see that they had a place, as far as possible, on the various farmers' institutes that were held by the Department throughout the State. His statements were met with hearty approval and great applause. A vote of thanks was extended to him for his assistance. Richard D. Barclay, a member of the State College, spoke of carrying on some experiments in apiculture at that place, and expects to investigate still further, and experiment on the various lines suggested.

After the report of the Secretary and Treasurer was read, reports of the various committees were heard, and the President appointed a committee on resolutions, consisting of Messrs. Cattleman, Woods, and Ferry. Mr. E. Pressler, of Williamsport, made his report of the convention of the National Association at St. Louis, emphasizing the procedure pertaining to the National Honey-producers'Association, after which the question-box was opened, and about fifteen questions of various natures answered and discussed with interest. The meeting closed with prayer by Rev. D. L. Woods.

At 5 P.M. a committee was appointed, consisting of the officers of the Association, along with Mr. Frank Benton, of Washington, and Mr. N. E. France, of Wisconsin, to visit the Governor. They had a conference of about forty minutes, in reference to securing a foul-brood law for Pennsylvania. Prof. Surface had worked hard in this direction in leading the Governor up to this meeting, and the Governor promised that he would do all in his power to secure this law. He suggested that the head of it be under the department of Prof. Surface, which met with the hearty approval of the Association. Governor Pennypacker shows a very kindly interest, and made many inquiries in reference to the pursuit throughout the different parts of the State.

At 7:30 the meeting was again called to order by President Surface. Wm. A. Selser, representative of the Root Co. in Philadelphia and New York, made some extended remarks regarding the bee-supply business having been brought to the doors of the bee-keeper through the East, and the hearty satisfaction that the bee-keepers had expressed in visiting the different branches in being able to get their supplies within a few hours' notice at their own doors. He said that, while the expense might be increased slightly on account of establishing these branches, the bee-keepers everywhere had expressed their approval in declaring that they had not only been saved freight and annoyance, but it being so hard to anticipate their wants to any extent ahead, especially during the busy season, they felt the Root Co. had been really benefactors to the bee-men.

The president then made his annual address, reviewing the whole matter of the foul-brood law, and what has been accomplished in the State in the short time since its organization, and what he had planned for the future. Prof. Surface's address showed that he was thoroughly familiar with the subject in all its details. With such an able officer, the Association has great reasons to congratulate itself. The President spoke especially as working in conjunction with the local association, and hoped that all the local associations throughout the State would join the State Association in a body. He showed that the three associations, the local, State, and National, were all working in perfect harmony, and he urged every bee-keeper in the State to do all in his power to assist him by joining.

Next followed the paper by Dr. E. F. Phillips. He has been recognized, especially among the officials of the State, as a high authority on all matters, and more especially in a scientific way on bee culture. The doctor takes a deep interest in the practical part of bee-keeping, and the meeting had no one to pay closer attention to every detail of its proceedings than Dr. Phillips. Quite a discussion followed the reading of Dr. P.'s paper, and the meeting adjourned at 10:30.

On Wednesday, at 9 A. M., in the absence of the President and first vice-president, Wm. A. Selser was called to the chair. The meeting was opened by prayer by the Rev. Mr. Baines. After some discussion of the minutes of the previous meeting they were approved. N. E. France, who had been the guest of the Association, and had been brought from the West to attend this meeting, was then introduced, and made a very interesting address on foul brood. Two other papers were on the program for this meeting, one by I. C. Fuller, on bee-keeping as a business, and one by Mr. Gabriel

Hiester, on bees and horticulture. They stated they would gladly put their paper in writing, and defer reading it at this time in order to hear the further remarks of Mr. France. Between his address and the questions asked him, he was kept for nearly three hours on the floor. Dr. Hayes, a noted surgeon of Harrisburg, brought out a great many points in his questions to Mr. France, and great emphasis was laid on the fact of carrying foul brood from one apiary to another. Mr. Benton mentioned the fact that he had known of some inspectors of foul brood carrying the disease. Dr. Hayes impressed on the Association the importance of sterilizing clothing, smokers, tools, hands, and even finger-nails, of the operator over a foul-brood colony. The bacilli can be carried in many ways heretofore not thought of by the bee-keeper.

This meeting held over almost to the time of the opening of the afternoon service, and this session adjourned but a few moments to get a hasty dinner.

SWARTHMORE'S QUEEN-REARING.

At 1:30 the meeting was called to order by the President. After the opening prayer, some discussion was brought out regarding the reports of committees. Then followed the paper by E. L. Pratt, of Swarthmore. His paper was also another one of the hits of the Association. Mr. Pratt went into details of the line of his work, and was asked many questions. The following is a synopsis of his report:

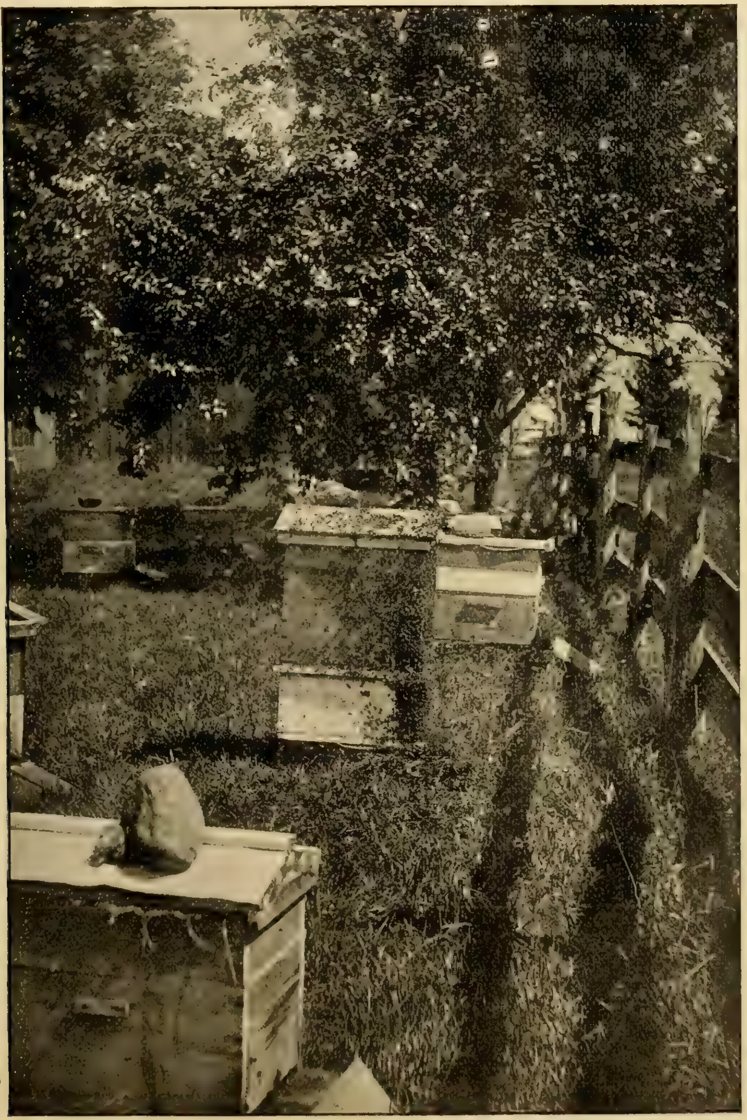
When he first began queen-rearing, the laborious methods employed quite discouraged him. He realized that, to continue in the business, he must hire more help or devise means to reduce labor; the latter was what he decided on. He reviewed both the old and the modern methods of queen-rearing, trying methods for himself personally in their various lines, and saw the necessity of having a separable and easily removable queen-cell in order to avoid the delicate surgical operations in transferring larvæ. He decided that the wooden cell-cups used by many breeders was a step in advance. The application from the top of the Swarthmore pressed queen-cups was explained, and many labor-saving points of the large cup were set forth by demonstrating. The process of waxing the cups, pressing the cells, and

A COUPLE OF BEE-KEEPERS ON THEIR "HONEYMOON." "MY HONEY AND I." SEE EDITORIAL.

grafting them without royal jelly, was gone through with, and numerous questions from the floor were answered. A very important point was the Swarthmore open-top folding frames and the manner of applying cell-bars, incubating, and confining cages to them, through slits in the sheets, from the top of the hive, without disturbing the bees, which was also demonstrated, and showed many labor-saving points.

A number of small cups, set side by side in a little frame so as to resemble a comb, in which the breeding queen will deposit eggs, to save the long process of grafting by hand, attracted considerable attention and brought forth much comment. It was shown how these little cups, each containing an egg, could be drawn from the frame, slipped into holding-shells, and given to the bees for queen-rearing, and how other cups could be replaced in the frame for future use in cell-getting.

Since 1881 he has been experimenting with "baby nuclei," and he has never used, from first to last, in these nuclei, more than a handful of bees in a little box for the sole purpose of mating queens. On the question of queen-mating, Mr. Pratt said twenty-five



BEE-YARD OF H. W. WILSON, DERBY, VT., SHOWING A SWARM THAT HAS JUST BEEN HIVED. SEE EDITORIAL.

bees are enough to mate a queen. Fifty will do it better, but more than a small teacupful is a decided disadvantage. The most intricate operation of the whole process of Mr. Pratt is the removing from a full colony a quantity of bees shaken in an empty hive with a little honey, and these queen-cups with larvæ in, to have a cell started for about forty-eight hours. It was very hard for him to make clear many of these points that were very clear to himself, as it was difficult, in such a very important process, to follow him from detail to detail, as one could if he were in his apiary, watching him work. The convention felt that Mr. Pratt had given them some very important ideas, and among many they could see why one could try these methods and fail, if they were not followed explicitly. It would be best by far for any queen-breeder who expected to make this his business to make arrangements with Mr. Pratt to go to his apiary and see him work, and demonstrate his theory, and compensate him for such service. It would be money well spent; and where many queens were bred, it would pay the breeder for any such time and cost the first season.

Mr. Pratt's methods have been condemned by many, simply because they have not been able to follow him as he directs. This seemed to be the sense of the meeting. His entire address met with great applause. In the evening Dr. Frear, from the State College, was to be present and discuss the standard of honey. The bee-keepers felt that this meeting more than repaid for their time and expense in attending; and with the many other things that were learned, the addresses of Dr. Phillips, Mr. France, and Mr. Pratt more than repaid them.

THE HERSHISER COMBINED HIVE-STAND AND BOTTOM-BOARD.

Its Value, Both in Summer and Winter.

BY OREL L. HERSHISER.

The salient objects of this combined hive-stand and bottom-board appear clearly after a careful study of the illustrations presented herewith.

Referring to the lettered parts of the engravings, A is the bottom-board; B the front, or alighting-board; C the bail-like support of the front, and D the flexible wire support of the rear ends of the bottom-board when the same is in ordinary outdoor use; E the pins used to regulate the size of entrance to hive and depth of space under the bottom-bars of frames; F the upper inside rim which forms a shoulder against which the bottom-board rests snugly when held in its highest position by the bail-like support C and the flexible wire support D; G is the hooks by means of which the alighting-board B is coupled to the bottom-board A—loops in the alighting-board B corresponding to the hooks in the bottom-board A; and H is the front sill.

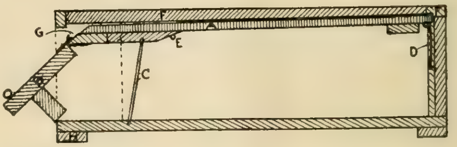


FIG. 1.—BOTTOM-BOARD; SECTIONAL VIEW.

Fig. 1 is a longitudinal sectional elevation through a vertical plane on a line between the two sides, which passes through one of the loops G, of a combined hive-stand and bottom-board, showing the relation of the various parts to the bottom and alighting-boards A and B respectively, in normal position for ordinary outdoor use. This figure, in connection with Figs. 2 and 3, clearly shows the manner of supporting the bottom-board A by means of the flexible wire spring D and the bail-like support C. The bottom-board A is lowered, for the purpose of enlarging the entrance to the hive, by pushing the bail-like support C back until it engages the pins E. One or more of these adjustments may be provided as needed or desired. The front board B is here shown in its capacity as an alighting-board, it being coupled to the hooks G of bottom-board A, by means of the corresponding loops on the upper edge of the alighting-board.

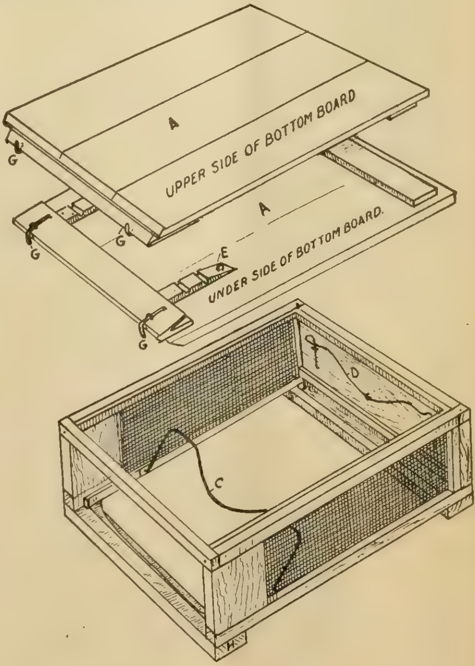


FIG. 2.—HERSHISER HIVE-STAND; BOTTOM-BOARD DETACHED; PATENT APPLIED FOR.

Fig. 2 is a perspective view of the hive-stand and bottom-board detached, showing details of construction of the upper and under side of the bottom-board A and of the stand. It will be observed that the flexible wire spring D is self-adjusting to any angle of the bottom-board A required in enlarging or contracting the entrance to the hive, it being sufficiently yielding for this purpose, and at the same time rigid to the extent of holding the rear end of the bottom-board A firmly against the under side of the rear portion of the upper inside rim F, Fig. 1. It will also be observed that the bail-like support C may be inclined at any desired angle for the purpose of lowering or raising the front end of bottom-board A to enlarge or contract the entrance to hive, and that, when closing the hive and stand, the bail-like support C is pulled forward until its upper part drops into the rabbet of the front sill H (rabbet shows in Fig. 2, but is not lettered), thus permitting the bottom-board A to be dropped to lower position where it rests snugly upon the upper surface of the lower inside rim into which the bail-like support C hinges.

Fig. 3 is a perspective view of the combined hive-stand and bottom-board adjusted for ordinary outdoor or summer use, with bottom-board A in highest position, resting snugly against the shoulder formed by the upper inside rim F; the front board B in position as an alighting-board, and the flexible wire support D shown by dotted line. The separate view of the alighting-board B, Fig. 3, shows the loops by means of which it is coupled to the bottom-board A by engagement with the corresponding hooks G, Fig. 3. It will be observed that the front board (alighting-board) B is provided with a substantial cleat the full length of its under side, joined in such position as will support it at the proper angle when in use as an alighting-board, and also to lock the bottom-board A securely in its lower position when used as a front board to confine the colony of bees within the hive and stand.

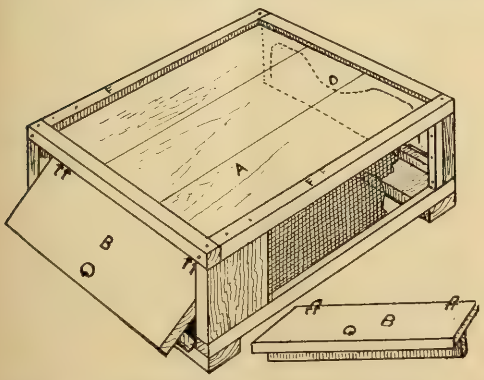


FIG. 3.—HERSHISER'S BOTTOM-BOARD AND HIVE AS PREPARED FOR SUMMER USE.

Fig. 4 is a perspective view showing the bottom-board A lowered and the alighting-board B inserted as a front board, which closes up the hive and stand as used in cellar wintering or in the transportation of bees. The bottom-board A is held securely in place by the cleat just beneath the flexible wire spring D and by the cleat on the front board B, shown on the under side thereof in Fig. 3. When so closed, the bottom-board A rests snugly on the cleats forming the lower inside rim into which the bail-like support C is hinged at sides of the stand, thus making it impossible for the bottom-board A to get shifted from its place while the front board B is inserted. A small ring fastened midway of the lower edge of the front board B, as shown in Figs. 1, 3, and 4, is convenient in inserting and withdrawing it. The front board B may be held in place by means of a button, or by a wire key dropped through eyelets screwed into the front of the stand just above the upper and below the lower margins of the front board B. Devices for holding the front board B in place, when stand is closed, are not shown in the engravings.

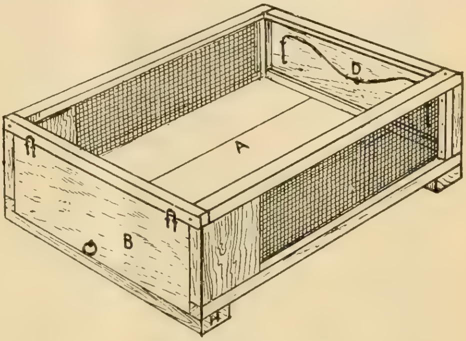


FIG. 4.—HIVE-STAND AS ADAPTED FOR CELLAR USE.

The wire-cloth screen at sides of stand, as shown in Figs. 2, 3, and 4 is for the purpose of giving needed ventilation at all times when the colony of bees is inclosed.

A few of the desired objects to be attained by the use of this combined hive-stand and bottom-board may be summarized as follows:

First, in wintering in the cellar or special repository the bees are confined within the hive, and the compartment below formed by the inclosed stand. Thus there will be no dead bees littering the cellar floor. Many bees which become uneasy, and disengage themselves from the cluster, but which have sufficient vitality to pass the winter, will not die at such time, because of the ease with which they can reunite with the cluster. These uneasy bees would surely die on the cellar floor if they could get away from the hive. By the use of this device the bees will come through the winter with the greatest possible numerical strength and vitality. Operatives will not be stung when placing the bees in the cellar or removing them therefrom. No mice can enter the hive while closed for the winter. Winter feeding may be accomplished directly beneath the cluster, and the interior of every stand is accessible by means of the removable front board. All the colonies of an apiary may be removed from the cellar and placed in their permanent outdoor positions before liberating any of them; then by adjusting bottom-boards at dusk all will begin flying the following day, or as soon as conditions are favorable, and there will be no confusion resulting from the change; swarming out, and the bees of some colonies joining other colonies, weakening the former and making the latter stronger than is necessary, will be greatly reduced.

Second, by the use of this combined hive-stand and bottom-board, in connection with any desired hive-body, a hive is provided in which the safe and easy transportation of bees may be accomplished, adding greatly to the prospects of success in migratory bee-keeping and the management of out-apiaries. This point is obvious. The bottom-board and hive-stand is fastened to the hive-body permanently, and all that is necessary in preparing for the removal of the bees, in addition to fastening on the covers, is to lower the bottom-board and place the front board (alighting-board) in position to close the hive at evening when the bees have quit flying. The closing or opening of the hives to confine the bees or admit them to flight, as the case may be, is quickly and effectually done, and the maximum of safety in the shipping of bees by freight, express, or othwise is obtained. Shipping and handling of the bees is accomplished with the greatest safety from stings, and the abundant ventilation and room in the inclosed hive effectually prevent overheating or suffocating the bees or the melting of the combs. A device which insures comparative safety from stings to horses, operatives, and employees of transportation companies is worthy of much consideration, as the dread of stings is perhaps the chief obstacle in the way of obtaining competent unskilled help in the apiary.

Third, the construction of this combined stand and bottom-board is such that the entrance to the hive will not clog with dead bees when wintering on the summer stand; rain, snow, and sleet will not beat in, and dead bees are easily removed from the hive by the colony without the live bees going outside of shelter. Also the apiarist may quickly and easily remove and scrape the bottom-board clean, and return it with scarcely any disturbance to the colony, and without removing the lid.

Fourth, by its use the entrance to the hive may be adjusted easily and quickly to suit the needs of the colony. The bottom-board may be drawn forward till only a bee-space remains at the entrance. A notch may be cut in one corner of the bottom-board, and the same drawn forward until the entrance is all closed except the notch, thus adjusting it to the flight of such small number of bees as is desired. The bottom-board may be lowered one-fourth, one-half, or full depth of front opening of the stand when it is desired to give abundance of ventilation and flight room during periods of heavy honey-flow, and to retard or prevent swarming as much as possible. The large entrance is also useful in the hiving of swarms; and the ease with which the colony may be safely confined in the hive greatly facilitates the placing of the new swarm on its permanent location. The adjustments of the bottom-board are ample to suit every need of the colony as to its size and to meet the requirements of varying temperatures.

Fifth, a bottom-board and stand is provided for the hive, which makes it an easy matter to bring the bees under the absolute control of the apiarist, should they engage in wholesale robbing. When this occurs, as it is likely to in the experience of every apiarist, how easily and effectually it may be overcome by closing every hive affected! The ample ventilation will prevent any ill effects from the confinement of the colony.

Sixth, this hive-stand and bottom-board provides a ready and expeditious means of preventing the melting of the combs of the hive and the consequent ruin of the colony during periods of intense heat in hot climates. This is accomplished by lowering the bottom-board to the position required for cellar wintering or for shipping, or by removing it entirely, allowing the air to circulate freely under the combs and through the sides and front of the stand, thus giving the greatest possible relief.

It has been the aim of the writer to provide a hive-stand and bottom-board simple in construction, easy of manipulation, and universal in all the adjustments that would be useful or profitable to the apiarist. As to the construction, it may be said that the parts should be accurately cut; but that any one with sufficient ingenuity to assemble the parts of supers or hives could as easily assemble and put together these combined hive-stands and bottom-boards. The manipulations are as simple as could be imagined in any of the other parts of a hive. In fact, any of the changes may be made quicker and easier than a super could be removed from a hive. The adjustment from that for outdoor use to that for cellar wintering may be made at the rate of 100 colonies in less than half an hour, and without smoke, as the bees are numb at this time of year. It will, undoubtedly, be admitted by all scientific apiarists that a hive-stand and bottom-board which may be expeditiously changed from its adjustment for ordinary outdoor use to that for the most successful wintering in cellar or special repository; a stand and bottom-board by which the entrance to the hive may be quickly enlarged or contracted to any required size; which is always in readiness to control robbing or to give relief from excessive heat; which may be used to control swarming, so far as the giving of plenty of ventilation will control it; into which the rain and sleet will not beat, and into which the driving of snow will be reduced to a minimum, is universal in its adjustments.

Buffalo, N. Y.

[Mr. Hershiser showed me this combined bottom-board and hive-stand at the St. Louis convention. I was convinced then, and am still of the opinion, that there are some good features about it. Whether bee-keepers will be willing to pay the extra expense of a device of this kind I can not say. Mr. Hershiser feels that it will more than make up for the extra cost in the saving of bees in the cellar, besides the general convenience in outdoor manipulations. He may be right. Besides the question of expense there is one objection, and I am afraid it is a serious one; and that is, the movable floor-board. Two years ago we put out the Danzenbaker bottom-board that had a floor that was tilting. It could be lowered much the same as the floor in the Hershiser device, except that it did not have the same range of movement. We were compelled to take the device off the market, for the reason that the bees would propolize the points of contact, making it almost impossible to move the board up and down; and I see no reason why Mr. Hershiser would not have just the same trouble that some of our customers had. The Root Co. received, and justly, too, more or less complaints that the bottom-board was not movable. The boards would swell so tight as to render the floor as fast and secure as if it had been nailed. To overcome this objection we made new floor-boards with the grain running crosswise, in such a way that the expansion and contraction of the wood would not interfere with the up-and-down movement of the board. While that overcomes this trouble of shrinking and swelling, we could not surmount the difficulty of propolis gluing the board fast, or so securely as to make its movement up and down very difficult and unsatisfactory.

I feel sure of this: That the boards in the floor will have to be run the other way to. Then the only difficulty will be that of propolis, providing always that the workmanship is perfect. Aside from this one difficulty there are features about this bottom-board that we feel sure are good, unless, perchance, it is bad practice to shut bees within a hive. It used to be said that they should never be shut in. I presume that is true with the ordinary entrance and bottom-board; but in the case of the Hershiser the matter may be very different.—Ed.]

THE FOUL-BROOD PLAGUE.

The Five-banders Much More Subject to the Disease.

BY C. E. WOODWARD.

I have read and reread Mr. C. F. Bender's article on page 1110, Dec. 1, concerning the foul-brood plague, with much interest; and while I have had much experience with the disease here in the tropics, although I have never found out or heard that the introduction of new queens does ever effect a cure, it is a fact that the yellow beauties, or, as some call them, five-banders, are very much more subject to all diseases than are the blacks or three-banded Italians. Three years ago I found in my home apiary, consisting of 400 colonies, in every case when a colony was struck with this plague it was sure to be one of my very yellow stocks. Now, there never was and never will be an effect without a cause. I know the doctor will scratch his head, and say, "Look out, young man, or I will trip you up with one of my Stray Straws." But, doctor, I'm on to you as big as a cart-wheel. All who have had experience with this yellow strain of bees know very well what their propensity is to rob; hence the rapid increase of the disease.

I confess I like and prefer those yellow beauties; but to tell the truth I've had to dispose of them for this one fault. An old priest told me, while he was at my apiary, that he kept bees long before the war, and he sent to a queen-breeder in the United States and bought some Italians, and after a while they all got sick and died. I am pretty sure that it was the foul-brood plague that killed the old man's bees, as the natives here in Cuba at that time did not understand the treatment of the disease, and, in fact, they do not understand it very much better at the present day.

Mr. Bender seems to think that the plague generated in his own apiary. But I feel sure it did not, nor will he effect a permanent cure by introduction of new queens. I have cured a good many cases by taking away all the brood and leaving all the rest of the combs with the bees, but not in all cases does this work; neither do I trust to fumigating with formaldehyde or drugs of any kind.

I condemned medicated syrups and all the drugs a long time ago. The treatment of foul brood is no drama. But let me say to Mr. Bender that simply keeping pure Italians will not by any means avert further destruction. If the cause has not been removed, and all infection from said colonies, the disease will in due time reappear.

HOW THE DISEASE IS SPREAD.

I had noticed that, whenever a colony had become diseased with this plague, there were sure to be three or four colonies very near this one diseased colony; and then, perhaps, away back somewhere in the apiary there would be five or six more diseased. This I found to be brought about by the field workers from the diseased colonies coming in loaded with honey, which were quite apt to make a mistake and get into the neighbors' hives, and, of course, there would be no kick on the part of the diseased bee from the other hive, because it had a load of honey with it, so it was permitted to come in and give the new honey to the young brood, and, of course, in due time disease was completing its work. Here in the tropics the apiaries should be requeened and recombed every three years to insure the best results. This would keep the bees from all foul brood. When I say foul brood I mean black brood and pickled brood.

Matanzas, Cuba.

THE WINGS OF THE BEE.

II.—Abnormalities in Venation.

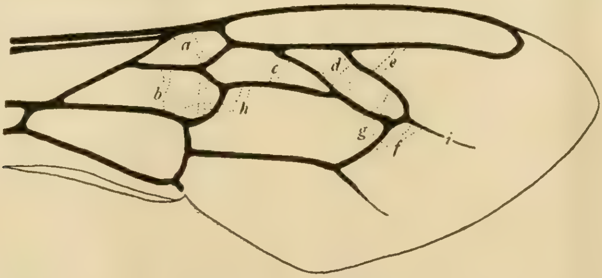
BY E. F. PHILLIPS, PH.D.

In the first article under this title the typical venation of the wing of the bee was described, and the ways in which it differs from the wings of a typical hymenopterous insect were pointed out. It is a common saying, that no two living things are exactly alike; and it is certainly true of bees, as can be seen by a series of measurements of any organ. In bees' wings we not only get differences in relative size of parts, but we frequently meet with cases of abnormal venation in which certain veins are lacking, or, as is more frequently the case, in which extra veins are thrown in.

If an animal were in all respects an average between its two parents, then all the offspring of any two parents would be identical in every particular; but this, common experience teaches us, is not true; for offspring vary all the way between the two parents, and frequently possess features seen in neither parent. One of the questions which have long troubled scientists is the reason for this variation. According to the theory of Darwin there is a survival of the fittest individuals, while the less fit perish; and this could not be true unless there were a difference in the fitness of the individuals; in other words, this variation furnishes material for the evolution to work on; and without variation there could be no advance. There has recently been considerable interest in the study of variation, among students of biology, to see and measure exactly the amount of this deviation from the type form in order to discover if possible the laws of variation. As a contribution to this work Dr. D. B. Casteel and I measured several veins on one thousand wings of drones and workers, and found that the drones showed the greater variability (see GLEANINGS for May 1, 1904).

In connection with this work we also recorded all the cases of abnormal venation which we found to occur in the wings examined, for such variations are particularly interesting as showing the means of arriving at the differences in venation which we find in different species of insects. It is to these abnormalities that I wish to call attention at this time.

The figure accompanying this article shows (in dotted lines) where the abnormalities occur most frequently. The heavy lines indicate the normal veins. It is very difficult to record these irregularities in any kind of table, since the irregular veins vary widely in extent, and do not arise at exactly the same place in many cases. An attempt was made to classify these according to the veins from which they branch, their extent, and direction. In this we recorded cases where a vein bends (*b* in table) from its true course, indicating but a tendency toward abnormality, as well as the well-marked cases. The extent of the abnormality is expressed roughly in the terms "very small" (*vs*), "small" (*s*), "almost complete" (*ac*), and "complete" (*c*). The letters used to designate these abnormalities are in no way connected with the naming of the normal veins, but are chosen merely as a convenient means of marking the irregularities. It will be understood that it is impossible to draw at all times the same line between, for example, the terms *small* and *very small;* and the table given below is of value only as giving an idea of the number of cases of abnormality. The letters in the table in italics refer to the figure.



THE WING OF THE BEE.

500 DRONES.

a, 82 b, 32 vs, 109 s, 1 ac, 2 irregular.
b, 7 s, 1 double s, 4 ac, 6 c.
c, 3 vs, 18 s, 2 ac, 13 c, 2 irregular.
d, 11 b, 27 s, 1 double s, 7 ac, 2 c.
e, 9 s, 1 ac, 5 c.
f, *g*, 8 irregular at anterior end.
h, 5 s, 2 c, 1 very irregular.
i, none.
Other irregularities, 14.

500 WORKERS.

a, 2 b.
b, 2 b.
c, 1 b, 3 vs, 9 s.
d, 3 b, 6 vs, 9 s.
e, 1 b, 1 vs, 3 s.
f, *g*, 2 irregular at anterior end.
h, none.

i, 2 lost veins, 1 almost lost.

Other irregularities, none.

Deducing the cases where more than one irregularity occurs on one wing we have 271 irregular drone wings and 37 worker wings. Leaving out of consideration those cases in which merely a bend is recorded, there are 206 irregular drone wings and 30 irregular worker wings, or almost seven times as many for drones as for workers.

The figure and these tabulations show that there is one region of the wing that is far more variable than any other. In the classification of the bees the sub-marginal cells are of great importance—that is, those cells which are in the second row from the front. Some genera of bees have but two sub-marginal cells; others, like *Apis*, have three; and from these observations we find that the part of the wing which varies most in the whole group of bees also varies most in the one species.

No attempt was made to correlate definitely these abnormalities with any lengths of the neighboring veins; but in a general way it can be said that the largest wings of each sex are the most abnormal, and this fact explains to some extent why the drone wings are so much more abnormal than those of the workers.

Philadelphia, Pa.

Conversations
With
Doolittle

ARTIFICIAL INCREASE.

"Good morning, Doolittle. Jones wants a little talk with you. What do you say on this matter?"

"I am willing, Mr. Jones. What shall we talk about?"

"I lost so many bees during the winter and spring of a year ago that I was not able to get my combs occupied with bees again during the summer, and I wish to know if you have some plan of rapid increase that I can adopt next summer so as to get bees on these combs early in the season."

"There are different ways of making increase under circumstances similar to yours; but after trying all I like what is termed the 'nucleus-box system' the best of any."

"That is something I never heard of. Please tell me about it."

"To work this plan we first want to get out boxes of suitable size for our operations, and I know of nothing better than an ordinary twenty-section shipping-case for colonies of the size you will wish to go on your combs. After having made your cases, all but the glass, use a piece of wire cloth for each side where the glass would go, nailing the wire cloth permanently to one side, while the other side has wire cloth nailed to a frame, and this frame hung to the open side, similar to the way a door is hung to a house."

"Pardon me; but what do you use for hinges?"

"I use leather, cut from an old boot or shoe, and find that this answers all purposes; but if you prefer you can buy the small butts or hinges sold at the hardware store."

"I had not thought of leather for hinges, and I think it would answer well. But go on."

"Having your nucleus-box completed, get your tinsmith to make you a great big funnel, which should be 18 inches across the top, with the usual slope of side, coming down to a 2½-inch upright, or outlet, which should be about 2½ inches long. If this outlet is much less than 2½ inches in diameter, the bees will clog, instead of readily passing down through, when a frame of bees is shaken into the funnel. Having the funnel made, strike two opposite sides against something, or squeeze together till you have an oval funnel about a foot wide and 22 inches long, in the diameter of the two ways across the top."

"Why do you fix it thus?"

"This will collect the bees in better, when the frame is shaken in it, than it would if left in the ordinary funnel shape, especially securing those which have a tendency to fly when they are being shaken from the frame."

"I see. But how are they to be put in the box with this funnel—through the door we have made?"

"No. A hole is to be bored in the top of the nucleus-box which will just let the small or upright part of the funnel down into it, this holding the tunnel in an upright position ready to receive the bees when shaken into the large part. Over this hole fix a little door or button, to cover the same when the bees are in and the funnel out. Then, by means of a spring, button, or wedge, fasten a section of honey taken from some of those you have left over (only partly filled) from the season previous, and your box is complete."

"What is this section for?"

"This is for food for the bees while they are in the box, as we often wish to keep them thus longer than the food they take in their sacs when shaken off their combs will last them."

"That is easy—seems strange I did not think of their needing food. But when shall I begin operations?"

"The next work is to crowd the colonies you have in the spring toward full colonies, just as fast as possible, using any or all the plans with which you are familiar for keeping them warm, stimulating, etc.; and as soon as any one of them gets strong enough, prepare it for the rearing of queen-cells by slipping a queen-excluding division-board down in the hive so as to cut off a part of the frames of brood from the queen, as Editor Root has told us how to do so often in GLEANINGS. You know of this matter, don't you?"

"Yes, I remember about it; and if I have forgotten any of it I can turn to the matter, as I have the back numbers of that paper for some years, loaned from a friend. But will not this hinder me from using this colony for increase?"

"Not after you get under way, for by this time the weather will become warm enough so you can take bees from it the same as from the rest. As soon as any of the colonies are full of bees, so they can spare bees from two frames, or from half a pound to a pound, and you have ripe queen-cells, take the cells out and put them into a queen-nursery to hatch. Then as soon as these queens are from one to two days old, go to any hive which can spare bees and take out two frames, being very careful that you do not get the old queen on either of them, and shake the bees from them down through the funnel into the box, doing this about ten o'clock. Now close the box and set it in some dark room till near night, when you will get one of the virgin queens in a cage having a stopper in it filled with 'queen candy,' so that it will take the bees about fifteen hours to eat out the candy and liberate her."

"How am I to get this cage in with the caged bees?"

"Pick up the box of bees and set it down suddenly, hard enough so that all of the bees in the box will fall to the bottom, when you will quickly open the funnel-hole, put in the queen-cage, and secure it there, an inch or two from the top of the box, by means of a bent wire. Having the caged queen in, set the box away again, leaving it till near sunset the next day, when you will find the bees all clustered about their new queen, and hanging like a swarm from the top of the box, or about the section of honey."

"This is new to me. All the bees I ever caged kept trying to get out, but I presume the reason is because I caged them without a queen."

"Yes, queenless bees will always worry to get out of a cage, and you will find these bees will, till they have the queen given to them. But we will talk on. You will now go to any hive that can spare a frame having brood in it, and, after taking it, replace the same with one of your empty combs you wish to use, when you will brush all the bees off the frame of brood, at the entrance of their hive, and put this frame of brood in a hive where you wish your new colony to stand, having in the same three or four of your old combs, some of which should have honey enough in them to keep the little colony from starving, should there be a scarcity of honey from the fields. Put the frame of brood in the center of the old combs used, and use a division-board or dummy to contract the size of the hive to the number of combs used. Having your hive fixed as I have just outlined, take your box of bees to it and open the door, and poke out a few in front of the entrance, when they will immediately run in with fanning wings. As soon as they begin to do this, poke or shake out more, or, in other words, proceed to hive them the same as you would a swarm. When all have run in, adjust the entrance to suit the size of the little colony, making it not very large if it is at a time of scarcity, when they will be likely to be troubled with robbers."

"That sounds well. But is there not lots of work to it?"

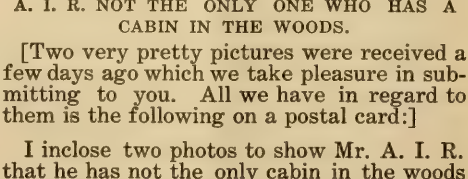
"It does look like considerable work when telling it; but after practicing all the plans given I do not see that it takes more time than the easiest of the others, and has the advantage that you can take bees from any colony you wish, and they will stay where put, and work as well as any swarm of like size."

"Well, if they will stay I shall be glad I came to see you, for the trouble I have always had with all artificial increase has been that the bees would almost all return to their old home and leave the brood to die."

"That is apt to be the case, I know; but with this plan they do not. What is applicable to one little artificial colony will work the same with all, so all you have to do is to keep on in the same way till you have all your combs covered with bees. And you will do this before you hardly know it; for as soon as the young queen goes to laying you can keep adding combs from your old store till eventually your hive is full."

"Can I secure any surplus honey from these little made colonies?"

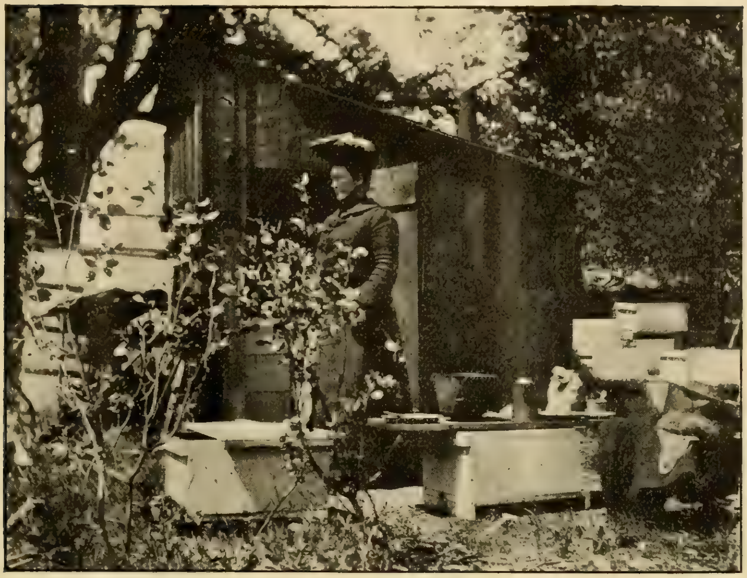
"If you can commence your work quite early in the season you will doubtless secure some surplus from fall flowers. But don't try to hurry too fast. The whole secret of success, in this stocking of combs, lies in not commencing operations till the colonies are strong, nearly enough so to swarm, and then not robbing them of bees till they are too weak to work to the best advantage, using few bees for each little colony early in the season, and more and more as the season advances, thus having all come up to full colonies by the time the fall flow comes on."



A. I. R. NOT THE ONLY ONE WHO HAS A CABIN IN THE WOODS.

[Two very pretty pictures were received a few days ago which we take pleasure in submitting to you. All we have in regard to them is the following on a postal card:]

I inclose two photos to show Mr. A. I. R. that he has not the only cabin in the woods in beedom; also of a house-apiary that is a

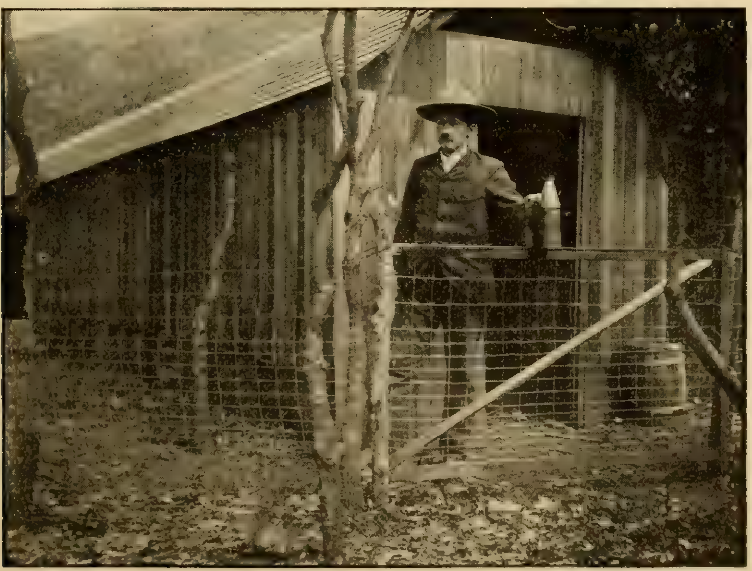


ANOTHER "CABIN IN THE WOODS."

success, although the photo was taken before the windows were put in.

Vacaville, Cal. THOS. PRICE.

[The picture with the lady in front of the door, we take it, is the "cabin," from the fact that there is a stovepipe coming out of the roof. There are also some utensils standing on the hive in front that look as if they might have breakfasted outdoors. I wonder if that is a horseshoe hanging up over the door to insure good luck. Well, I can tell you there are thousands of people who might have good luck and health thrown in if more of them would live, at least a part of the time, in a cabin in the woods. Mrs. Root often speaks even now of the comparative ease of housekeeping in a cabin compared with our commodious and comfortable winter home. We wish our friend



HOUSE-APIARY AFTER THE FASHION OF THE "CABIN IN THE WOODS."

would tell us a little more about that house-apiary that is a success, especially if he keeps it going several seasons without finally deciding he would rather have the bees out in the open air with room enough so he can walk around each hive.—A. I. R.]

SHOULD SNOW BE SHOVELED AWAY FROM HIVE-ENTRANCES? WINTER FLIGHTS FOR OUTDOOR BEES; DRONES IN DECEMBER.

A few days ago I took a shovel and broom, and dug my way through a snow-drift from the house to my hives, for the purpose of giving my bees a chance to fly out should a clear, mild day come. I cleaned the snow away from the entrance, and about four feet off to the ground, as I had often noticed how bees were soon submerged when out flying and happened to alight on soft snow. I took a thin stick and scraped the dead bees and refuse away, and was surprised to see a dozen or more *drones* emerge, take flight, and return without any objection on the part of the workers which were crowding out on the alighting-board owing to an accidental jar I gave them while shoveling. Don't you think it unusual for drones to be in a hive so late in December?

How many plies of burlap should be placed on top of frames when wintered outdoors? I have the Simplicity hives, with room between roof and frames for a good thick pad.

Roxborough, Pa. T. A. BECHTEL.

[If the snow is loose, that is to say, is not packed solid or frozen around the entrance, I should let the hives entirely alone. Early in the winter it is not necessary for bees to have flights, and it is better, perhaps, for them not to have them until such time as it warms up sufficiently so they can fly and return without being chilled. In the latter part of the winter the bees should have a flight, providing there is a day warm enough for them to fly and return. When they are outdoors on their summer stands it is not always possible to control this. Bright sunshine will often draw them out into chilly air where they soon drop down from cold, and die. In the case of indoor bees this flight can be perfectly controlled awaiting a perfect day, warm and balmy. Some control may be had of the outdoor bees providing a board be leaned up against the front of the entrance to shut out the bright rays of the sun. It may be advisable to strew loose straw or leaves on the front of all the entrances to prevent flight on bright cold days. Keep the straw over the entrances during a good part of the winter, but every now and then rake out the dead bees. When you have a nice warm balmy day pull the straw away, and replace it after the bees have had their flight.

It is a little unusual to have drones in the hive in December. It is possible that your hive is queenless, had a virgin, or that the queen, if laying, was a drone-layer. The colony in question had better receive your special investigation on the first warm day. If queenless, or if there is an unusual number of drones, I would advise you to put in a good queen. The thicker the covering over the frames, the better.—ED.]

WINTERING A FEW COLONIES IN A VEGETABLE-CELLAR; IS IT TO BE ADVISED?

I have ten colonies of bees in Danzenbaker hives. I have always wintered outdoors, and should this season, but have had four colonies stolen this fall. Now, I have a good cellar, dry and dark, which I can ventilate by a window. I am keeping it cool. I have some apples in it but no vegetables. Would you advise putting the bees in there or leaving them out? I am afraid more may be stolen. FRANK P. STOWE.

Seymour, Conn., Dec. 3.

[I see no reason why you could not put those bees in a vegetable-cellar providing you can keep the temperature down low enough. If it goes much above 55 or 60 a part of the winter, and the weather is comparatively mild outdoors, you had better take your chances on having the bees outdoors subject to the possible depredations of thieves. It is usually not advisable to put bees in the same cellar with vegetables; but where the temperature can be kept about 45 throughout the winter, you can put in as many as ten colonies and possibly some more. But a better way would be to partition off the cellar, putting the bees in one compartment and the vegetables in another, otherwise the dead bees will be apt to get all over every thing. Of course, colonies in Danzenbaker hives should have the wide entrance while in the cellar, while outdoors they should have the narrow one; and in your climate they ought to be protected with a winter-case. Taking it all in all I would advise outdoor wintering in your locality with a winter case, putting the bees near a dwelling-house, where they can be under the supervision, more or less, of the family. In cold weather the bees can be moved to any place you may desire, provided they can not fly again inside of two or three weeks. In the absence of a winter case, put a dry-goods box over each hive to shut out the light, and to afford protection against prevailing winds. On a warm day in spring, or even in late winter, raise the boxes up and let the bees have a flight and then put the boxes back again. Don't let the bees have flights on sunshiny days when the air is cold enough to chill them; for bees do not seem to know sometimes when it is good for them to stay in the house.—ED.]

MID-WINTER FLIGHTS OF CELLARED BEES; ARE THEY BENEFICIAL?

We notice in last issue of GLEANINGS, in Stray Straws, a little discussion in regard to the advantages of mid-winter flights. Now, as yet we can not side for or against such flights; but there is one thing which we notice occurs every season quite regularly, and that is, there are donble the bees come out and die on the floor during the month of March that there are during all the preceding months put together. If we could have a nice warm day the latter part of February or the fore part of March we might save a large part of the bees which otherwise come out and die. However, it's an open question in our mind as to whether these same bees which we find dead on the floor would ever be carried back in the repository after being given a chance to fly. Would not a large part of those bees take wing and die outside the hive? H. G. QUIRIN.

Bellevue, O., Dec. 26.

[What you say regarding the accumulation of dead bees in the latter part of spring being more than all the rest of the period of confinement, is exactly true. As you live in our own latitude, and your climate is practically the same as ours, may I suggest that you try this experiment? When the first warm day comes on in the latter part of February or fore part of March (the earlier the better), give a part or all of the bees a flight before setting them on their summer stands, and return them the same day toward night. If you do not find that the number of dead bees on the cellar bottom is considerably reduced thereby I shall be greatly surprised. I argue that the bees fly out of the hives in late spring mainly because they are in distress, their intestines becoming overcharged. I do not believe it is true that bees in a semi-dormant state in mid-winter wear out or become "superannuated." This old notion that they would die anyhow in the cellar, and are therefore no loss, if believed in may be expensive. It has already cost bee-keepers millions and millions of bees, and in some cases I fancy it has made all the difference between profit and loss. A strong colony in the spring is sometimes easily worth three of medium-strength ones. Indeed, the medium colonies may get no surplus, just holding their own, while the strong ones would obtain a good crop of honey; therefore I believe it pays to save this fearful cellar loss if it can be done. I am free to admit it may not be possible in *every* cellar. We have two such cellars at outyards in our own locality where we can not control the death losses because we can not control the temperature—that is to say, we can not prevent it from going below or down to freezing, and so we have practically abandoned both cellars. Answering your last question, I should say yes and no. But the far greater part of the bees would return to the hive *if the atmosphere is not too cold*—ED.]

HOW TO GET BEES INTO THE CELLAR WITH THE BOTTOMS OFF THE HIVES.

I wish you would tell how you get bees into the cellar with bottom-boards off. I had trouble with mine—bees all over the bottoms and all over me.

Pittsville, Wis. A. B. WHITE.

[The day before we expect to put the bees into the cellar, when the temperature is down to freezing or a little below, we go around with a pry, put it into the entrances, and break the propolis connections. We next loosen the bottom from the ground. The next morning, if the temperature is still down, we pick up bottom-board and all with a pair of hive-hooks, carry the hive into the cellar, and on arrival there we quietly lift it off the bottom-board, setting the hive on a pair of 2x4's. Another hive is brought in and set down in the same way, but about four inches from the one first placed. So on we continue until the entire row is completed. Another tier of hives with bottom-boards off is placed on top of the lower one, but each hive directly over the space between two hives below.

If you attempt to carry the bees in on a warm day, they will be liable to come out and bother. Wait till the temperature is low enough so the cluster draws up in one compact mass on the combs; but make sure the bottom-board fastenings are broken a few hours before the hive is carried in. In the mean time the bees will quiet down if they were disturbed. If the work is done right, there will hardly be a bee flying.

If the bees should fly out they can be stopped with a smoker, or shut in with a handful or two of snow thrown over the entrance. If the hive-bottom is left on, the snow will melt away in the cellar after the bees quiet down.

Where the entrances are wide and deep, and the colony not too strong, it is not necessary to remove the bottom-board. In fact, in later years we have had practically as good results by leaving the bottom-boards on, with the board turned in such a way that the bees have the largest opening. The old ⅜ entrance is entirely too small for a strong colony, and should never be allowed in the cellar except in a case of nuclei or weak colonies. If the cellar has a tendency to be too warm, the bees had better have the bottom-board off.

Some people secure good results by using the old deep ⅜ entrance; and, instead of letting the colony have their outdoor cover, they put a light thin cloth on top of the frames. Others prefer to put on a piece of old carpet, and some prefer a chaff cushion to absorb the moisture. Some of the best wintering I have ever seen in the cellar was with the old ⅜-inch entrance, with a chaff cushion on top.—ED.]

YOUNG BEES; HOW SOON THEY CAN ASSUME THE ACTIVE DUTIES OF THE HIVE; A REPLY TO DR. E. F. PHILLIPS.

Permit me to say a word contrary to the views of Mr. E. F. Phillips in regard to young bees, and why they do not go to the fields at an early age. When bees emerge from the cell, every bee-man knows they are weak and undeveloped, and that each bee must "grow" exactly as a mother's child does. Bees, naturally, are not taught, but learn their ways of life by imitating those before them. If Mr. Phillips will go to the trouble of introducing an Italian queen into a hive of black stock containing two combs of brood with an empty comb between them, and a comb of honey on both sides of the brood, waiting for developments, I think he will find that bees are not blind nor weak either, even after the lapse of four days. On the second day after one of those Italian bees crawls out of a cell a person can get that bee to take sips of fine honey from the point of a toothpick, and on the third day that bee will hunt over the combs for the honey, where, before, you had to put the drop in front of it.

I know all this takes time and great patience; still, it is thus to get natural facts. I can truly say I have sat by a hive fully six hours in a day. On the fourth day it is easy to get the bee to come at the entrance for the bit of sweet; and when this is accomplished you can close the hive, get the colony robbing in earnest from a feeder, shut off the supply when things are booming, and in an hour or two you will see Italians coming in from the field with small loads of nectar, having learned the source by information from the old black fellows—yes, they learned the directions by sight, and found the treasure by smell. The conditions were warm weather, a good honey-flow, and a colony of ambitious young bees—this and nothing more. On the fourth day one might get only the youngsters coming outside the entrance; but on the fifth day there should be no trouble whatever. Are bees kept from seeing things perfectly when very young? I don't think so, because, if you will but notice where there are plenty of bees six to eight days old in front of a hive, those bees will keep "rolling their eyes" at you all the while you are near.

If this appears in GLEANINGS I will beg Mr. Phillips' pardon, and also that of Arthur C. Miller, as their theories are different in substance from the facts I have found by observation.

To-day I have two colonies—a black one and one I introduced a Holy Land queen to, after which I observed and came to believe the things related above. The fact that some of those Holy Land bees went to the field after being so encouraged by me is absolutely true. I will add that it was during August, and with a large buckwheat-field about 50 rods distant. The queen was introduced July 25th, 1904.

Danville, N. J. RALPH P. FISHER.

[Your observations are interesting and valuable. You have since seen that they are in line with a recent statement by Dr. C. C. Miller. It should be said that Dr. Phillips did not say that young bees could not see because of the tangle of hairs over the eyes; but he did suggest that *possibly* these hairs might obstruct or obscure vision at an early age for a purpose.—ED.]

HOW MEDICINES FAILED AND BEE-STINGS CURED.

Since you ask for the testimony of rheumatic patients who have tried the bee-sting cure I will give my experience. In the winter of 1887 I commenced to have a sleepy sensation in my right hand, which would develop into a numbness of the arm, and finally to extreme pain. The pain became acute, and lasted 6 months, at the end of which time I had partially effected a cure, but had nearly destroyed my stomach by the medicine taken. I found myself in a position in which I had to have either rheumatism or indigestion, one or the other, all the time. After three years of this experience I bought a colony of bees and placed it on the roof of my house and commenced to take from three to ten stings per day, and have taken the sting cure in warm weather since, but have taken no medicine since, and have no rheumatism. The effect of the stings in my case was marvelous and rapid.

BEES ON A FLAT ROOF IN THE CITY.

Before closing I want to say for the benefit of the order that a flat roof for people in the city is a fine place to keep bees. I shelter my bees by an outside case over each hive, and anchor the same to the roof, and they interfere with no one. I feel a little proud of my success, having made over forty per cent out of my little apiary last season. I sold one colony of golden Italians for $15.00 to a neighbor who was bound to have them because they were so gentle.

C. E. PHELPS.

Washington, D. C., Dec. 24.

ITALIANS NOT IMMUNE TO PICKLED BROOD.

I see that GLEANINGS wants reports about pickled brood. Italians are not exempt. I bought seven queens the past summer of best strains of Italians, and lost all from pickled brood. A queen from Root's three years ago, and her progeny, are seemingly all right, also a queen from the same place. If the bees were shaken on foundation in disinfected hives, and fed on medicated syrup, would that cure them?

Clinton, Ill., Dec. 12. HENRY WILSON.

[Very little is known about pickled brood thus far, and I can not tell you whether feeding medicated syrup of any kind after having been shaken on frames of foundation will effect a cure.—ED.]

SHALL WE FEED BEFORE FRUIT-BLOOM?

In feeding to stimulate brood-rearing in the spring how long before fruit-bloom would you begin? What is the best and easiest way to feed, say ½ lb. syrup to bees in chaff hives? A. J. MORSE.

Plum, Pa., Dec. 27.

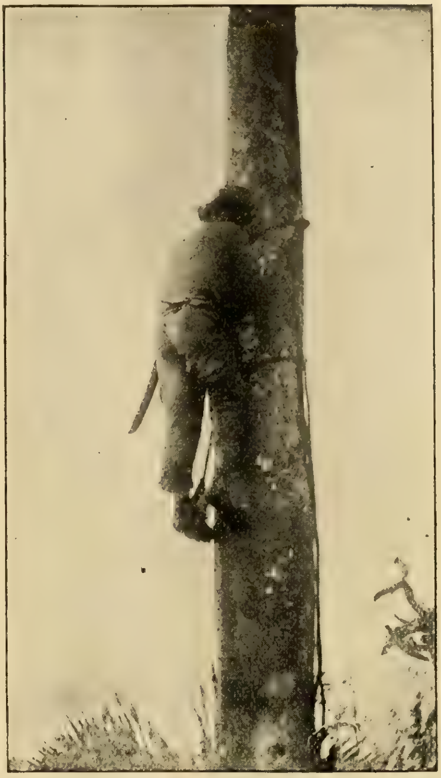
[No, I would not advise giving liquid food before fruit-bloom. Stimulative feeding, in any case, should not be practiced until it is comparatively warm, or when the bees are flying every day. If the bees require feeding before fruit-bloom to keep them from starving, give a comb of stores from some other colony, or a cake of hard candy.—ED.]

NOTES OF TRAVEL

BY A. I. ROOT.

CLIMBING THE ROYAL PALMS IN CUBA.

The cuts accompanying this article were made two years ago when I passed the winter in Cuba. I examined the apparatus at the time, and thought when I got home I would instruct the grandchildren how to climb telegraph-poles with a similar arrangement; but I found myself unable to do it. Perhaps some of the Cuban bee-keepers, when they see this, will be kind enough to send us instructions. My impression is, however, there is just one single piece of rope with a stirrup on one end, very much like the stirrups used in ordinary saddles. With that single piece of rope the man would go up a royal palm with very good speed. There are two loops around the tree, as you will notice, with quite a piece of rope dangling several feet below the man. He puts one foot in the stirrup, as you will notice, and the other *leg* is placed across the loop of the rope. While pulling up the stirrup he holds himself by this loop, which comes just under his thigh. After the stirrup is drawn up he rests on the foot in the stirrup, raising the knee, which permits him to lift up the loop up near his head; then resting on this loop he pulls up the stirrup again. I saw him do this, and took his rope in my hands, and looked it all over and thought it very simple; but when I got home I had forgotten how to do the trick. It is not hard work at all, for the experts such as you see on the tree will climb the tallest trees, cut off enough of the bunches of fruit or berries to make a very fair wheelbarrow-load, and let them down on the ground at only five cents a tree, and they make very good wages at that. Unless one is careful, and understands the trade, there is some danger that he may tip over, head down and feet up. I think he steadies himself by his toes when his hands are not clasped around the tree.



A CLOSER VIEW SO THE ARTIST COULD SEE HOW THE APPARATUS IS MANAGED.

CLIMBING THE ROYAL PALMS IN CUBA.

You will notice something dangling by the side of both men. It looks like the scabbard of a sword. Well, that is a Spanish machete—a tool that always accompanies every workman. But you need not be alarmed. It is not often used as a weapon of warfare or defense. The Cuban uses his machete much as we Americans use a pocket-knife or a hatchet. As a tool it is used to a very great extent for almost every thing, whether he cuts brush, weeds, or digs in the ground, and ever so many other things that you would have to stay in Cuba a while to understand.

One of our American bee-keepers borrowed the rope and undertook to climb. He not only made hard work of it, but our Cuban friend said it was dangerous business for one who had not carefully learned the trick by practicing close to the ground.

At first I thought this method of climbing would be a great improvement over our climbers for climbing bee-trees, telephone-poles, etc.; but the main trouble is, if anybody here in America had the apparatus he would not know how to use it; and it might be too slow for the men who climb telephone and telegraph poles, even though it does seem to be pretty quick work with the Cubans.

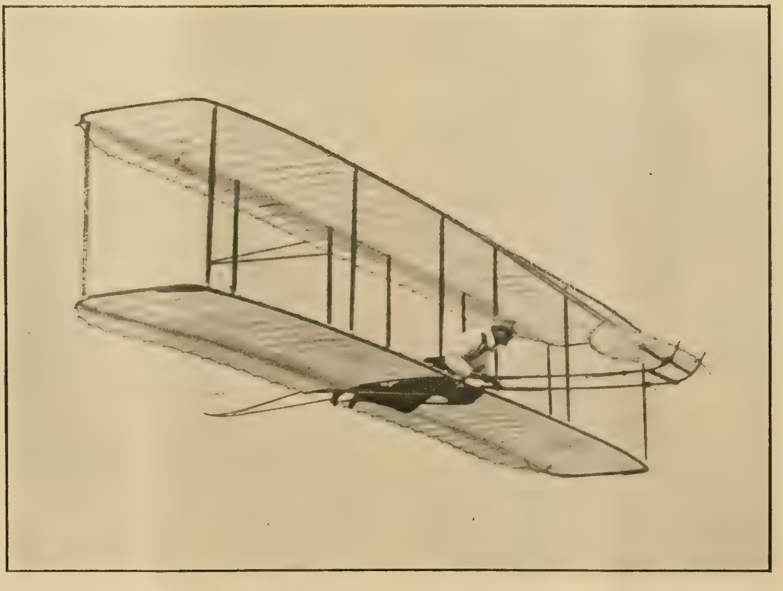
THE WRIGHT BROTHERS' FLYING-MACHINE.

I shall have to apologize a little, friends, for giving a picture of the gliding-machine instead of a flying-machine; and I shall have to apologize a little more because the rudder in the rear that guides it from right to left is not shown in the cut; neither are the diagonal wire braces shown. You will recollect the machine is made of white canvas. The wires are also white; and with the clear sky for a background it was very difficult to get a clearly defined picture. To make it a little plainer the outlines have been marked with ink, as you will observe.

The back side of the planes shows the outline as it really appears. The cotton is stretched over a light framework of light sticks, giving it somewhat the appearance of a bird's wing; for both planes, upper and lower, are concave to some extent. The front rudder, that changes the course of the machine up or down, is a small independent plane that can be raised or lowered out of its level by the operator. The back rudder that does not show in the picture consists of two vertical planes that can be revolved on a pivot so as to turn the machine either to the right or left. The operator, Mr. Wilbur Wright, if I am correct, is shown very plainly.

It has often been remarked that one of the most beautiful sights in the world is a ship under full sail, especially a new sailing vessel with clean white canvas. There is something especially exhilarating about the way in which the canvas catches the wind and sends the ship scudding through the waves. But to me the sight of a machine like the one I have pictured, with its white canvas planes and rudders subject to human control, is one of the grandest and most inspiring sights I have ever seen on earth; and when you see one of these graceful crafts sailing over your head, and possibly over your home, as I expect you will in the near future, see if you don't agree with me that the flying machine is one of God's most gracious and precious gifts.

I mention at the outset that the picture represents the gliding-machine. Well, the flying-machine is the same thing with the aluminum engine which stands right close to the operator and the pair of propellers, one each side of the back rudder. When in flight the propellers are invisible. Their action is very much like the motion of a bee's wing—perhaps not quite as rapid. But the picture as we give it gives you a very fair idea of the new vehicle that requires no macadam road, no iron rails, and no expensive bridges. Its highway is God's free air; and as it has only the vaulted heavens above to fence off our domain, there surely should not be any dispute about the "right of way;" neither should there be any difficulty in the way of collisions or get-



THE NEW-FASHIONED SLED FOR SLIDING DOWN HILL ON THE AIR.

ting in each other's way. The automobile is largely restricted in making speed by other vehicles, especially where the driver does not wish to annoy or inconvenience any of his fellow-men. If anybody gets in our way with the air-ship we not only have ample space to go around him to the right or to the left, but we can "duck under" or scoot over his head if it seems advisable. There does not seem to be much danger in the way of loss of life unless something happens to the front rudder; and that is one feature that should be made safe beyond the possibility of an accident. While up in the air there is but very little to injure or to put any great strain on any part of the machinery. If you run into a tree or a house, of course there would be a smash-up. No drinking man should ever be allowed to undertake to run a flying-machine.

OUR HOMES,

BY A. I. ROOT.

> Gather up the fragments that remain, that nothing be lost.—John 6:12.

There are in this world of ours something like 1500 million people. In this country of ours there are about 80 millions. In the United States there are comparatively few who suffer from a lack of food. It is altogether likely there are more who are suffering because they eat *too much* than the other way. I do not know how many there are in this whole wide world who do not have enough so that their bodies are comfortably nourished; but there are, without doubt, countless thousands and may be millions who are literally suffering from a lack of suitable food. There are, no doubt, millions of people whom we know so little about, one can hardly tell how many are needy; but we are told on good authority that people are starving all the while in various parts of the world, not only by hundreds but by thousands. Then there are still greater numbers, not only of men, but of women and children also, who toil all their waking hours—perhaps many hours which they really need for sleep—in order to get *just enough* of the cheapest and plainest sort of food to live. Our missionaries tell us of this kind of suffering; but the missionaries are so few compared with the great numbers of people where there are no missionaries, or only one missionary for several thousand, that we know comparatively little about the suffering and distress that are going on in different parts of the world. If these people could have railroads or other means of transportation, as we have here in America, to move the surplus in regions where there is famine, this matter would be measurably remedied; and one reason why we should each and all of us, whether we are professing Christians or not, stir ourselves to spread the gospel according to our Savior's last words—"Go ye into all the world, and preach the gospel to every creature," is that this seems to be the readiest means for relieving and supplying the starving millions.

I have often spoken in these Home papers, by way of remonstrance, of the amount we as Americans waste every day. It is not only millionaires and the people who can afford to pay several dollars a day for their board (or at least they *think* they can), but it is those in the humbler walks of life who waste so much of what the father of the family earns that they never get on in the world. They pay rent *all their lives* instead of owning a home of their own, just because they fail to use economy in choosing and preparing their daily food. Our good pastor startled me last Sunday by calling our attention to the fact that the dear Savior bade the people gather up the fragments that remained, that nothing be lost, after that wonderful miraculous feast. If there ever was anybody in this whole universe who did not need to be saving, it was He whom even the winds and waves obeyed. He could, by his simple word, or prayer to the Father, provide in an instant loaves and fishes not only for thousands, but probably just as easily for the whole wide world. Do some of you ask, "Why didn't he do it"? Because, my good friend, experience and common sense teach us that it would be no kindness to provide food that they might spend their time in idleness. We hardly need discuss this phase. Well, if our beloved Lord and Master commanded them on that memorable occasion to gather up the fragments that nothing be lost, does it not follow that it is our duty, every single one of us, from the President in the White House down to the occupants of—suppose we say "the cabin in the woods"—in a like manner to gather up the fragments after each meal? Of course, we do not know exactly what the Master intended should be done with those fragments; but we may be pretty sure it was to feed hungry people at some future time, and *not* give it to the pigs and chickens. Of course, it would be better to turn it over to the pigs and chickens (and dogs) than to have good nourishing food wasted; but I am sure that, in this land of ours, too much is turned over to domestic animals. I do not know that I ever heard of *chickens* being made sick; but I can recall an instance where pigs were made sick by the slops brought from a great fashionable hotel. If the number of pigs had been great enough to "handle" all the garbage before it had had time to ferment and smell bad, perhaps the digestion of the swine would have been equal to the task. I got a glimpse of it in this way. I paid a short visit to a bee-keeper once who engaged to take out of the way all the refuse and garbage from a big hotel where they had a large patronage of wealthy summer resorters. You probably know how they manage where people pay a dollar for a meal, or even more. A great lot of nicely cooked food is brought to every person, in a great number of dishes. He takes what he likes, and leaves the rest. Sometimes only a few of the *entrees* are even tasted at all; but the colored waiter piles all of these dishes, food and all, into a big pan, and hustles them out of the way.*

At some hotels I believe they have lunch-rooms where they dispose of a great deal of these untouched viands at a lower price; but of late, so far as my observation goes, this thing seems to have been abandoned mostly. Perhaps the hotel must preserve a certain line of dignity. Our choice fruits, vegetables, and meats cost a lot of money. Then the cooking and serving cost a lot more money; but after it is all done and on the table, the stylish man or woman (I have sometimes thought the women are more wasteful because they call for so much and eat so little) wastes enough at each meal to feed a small family of children. Yes, even in our own country there are thousands of hard-working families that would be made happy by a small portion of what each guest wastes at every meal. This thing really pains me. Even if it *is* true that I can afford to pay a dollar for each meal three times a day—that is, if I can afford it as well as some other people who *think* they can—my conscience would hurt me in doing it when so many others are suffering for food.

Carnegie has said, we are told, that, in his opinion, it is a disgrace for a man to die rich. I hope he thinks so still, and will always stick to it. I have been hoping, and *praying*, too, that he might give some of his burdensome millions that they might feed the hungry and starving in different parts of the world. Somehow or other the millionaires think more of colleges and libraries than they do of relieving people from the pangs of starvation.

I presume many people laugh because Mrs. Root and I have always been in the habit of saving the "fragments." We were brought up that way, and I suppose we shall always follow our peculiar notions, some may call it, in that respect. When we are alone in that cabin in the woods, we manage our provisions in such a way that there is never any thing left for the pigs, and rarely enough for a chicken; and yet we are not at all confined to the cheaper foods. When we go to Traverse City we put in a fair supply of the best of every thing that is to be found in the market—that is, we have whatever we care for, no matter if I might, under the circumstances, call it expensive. Like my good friend Terry, I am fond of cheese, and I like the high-priced cheeses that come in little packages. Then there are other things that would be expensive if we ate a little and threw away the rest; but we manage to have a good variety at each meal, and also have each meal different from the one preceding. At the same time, our living expenses are *ridiculously* small, you might almost say, because we manage so that nothing is wasted. Whatever is left over, Mrs. Root manages to fix up in such nice shape for the next meal that it is never left over a second time.

Sometimes in the summer the bread dries out, or pieces are left. These she dries still more in the oven. If dried until it is brown, it is a little like the German zwieback. On one occasion some pieces of dried bread were left in the oven when we left the cabin. A month or two later I got around to our place all alone and quite hungry. With some milk from a neighbor's this dried bread made an excellent and healthful repast. By the way, when I am out on my automobile rides I carry a paper bag of this dried bread. I think that made and sold by the Battle Creek Sanitarium is the best I have ever found. Even in traveling I like my meals at regular hours; and when I am out with an auto it often happens (especially when I get up at daylight and start out) there is no hotel near when mealtime comes. Whenever this happens I get out my lunch of dried bread and cheese, and I not only enjoy it, but my health is ever so much better in traveling than when I have a big breakfast or dinner at a hotel. It saves time; and what do you suppose the expense of a good meal is, made in the way I have mentioned? We get the zwieback in bulk for 10 cts. per lb., at our groceries. I think about a cent's worth of cheese and five cents' worth of dried bread, with water from some wayside spring, is all I need for these wayside lunches. A few times my auto has got out of repair when out in the country, and I never like to work hard, say down under the machine, when I am hungry; so you see how nicely my lunch comes in. Another good thing about this inexpensive lunch is, it never spoils. Sometimes I have no occasion to use my lunch at all; but it is just as good when I get home after a trip of two weeks as it was the day I started.

If you are giving to the cause of missions to feed the starving and dying people in those parts of the world where there is famine, you have so much more money to spare for this work where you live in the way I have mapped out; so it is not at all unreasonable to say, we take the surplus food that is thrown away at hotels and send to the starving people away across the seas. Instead of sending the food which you do not want or need, you send *the money* it would cost. But this is not all of it. There are two sides to my talk to-day, and I am just geting over to the other part of it. Let me digress a little as I start out on my other talk.

When I was out on that automobile trip of two weeks across our State diagonally, which I told you about, I discovered I could get the greatest amount of speed from a very small amount of gasoline by adjusting the flow of it just right. Every one who runs an automobile has discovered that too much gasoline clogs the motor. It puffs out black smoke, fills the cylinder and carbureter with soot, and soils and clogs the spark-plug. With *just enough* gasoline, and no more, there is no black smoke at all—no clogging of the machinery with soot; but when you come to climb a hill or take an extra passenger you have got to increase the flow of fuel a little. With practice, however, you can give this gasoline-valve a touch whenever you come to an up grade, and keep just enough running, and no more, to do the work. Well, on long stretches of level road through some of the western counties I discovered I could turn on *not quite enough* to do the work—at least, it seemed when I set the valve that there was hardly sufficient to keep the motor up to full power. But I found by running it this way a little while the machine seemed to get used to the scant supply—I do not know any better way to express it; and the speed would keep gradually increasing without any additional fuel, and in this way I made the machine give the very best results. In going down hill, where the incline was sufficient I could shut off the fuel entirely. Well, when I managed so as to make the machine do its work with the least amount of fuel I found it was an easy matter to keep the engine in perfect order; and I was finally obliged to decide, like many other users of gasoline-engines, that the greater part of the trouble with these machines comes from using more fuel than is really necessary.

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* The above is not all. Instead of "gathering up the fragments that nothing be lost," the average girl dumps the dishes, with more or less food in them, into the dish-water. Then the dishwater is dumped into the slop-drain, soon choking it up in spite of the skill of our best sanitary plumbers. Of course, the slop-drain usually has a strainer of wire cloth or perforated metal; but as the "stuff" does not get through fast enough the "help" yanks out the strainer. This diluted rich food is just the thing to ferment and produce sewer gas, resulting in typhoid fever, diphtheria, and other diseases. Sickness and death might have been prevented by reasonable economy in this direction.

When making these experiments it occurred to me that it was a good illustration of this matter of sickness and health in the human family. T. B. Terry, in his health notes, in the *Practical Farmer*, is continually repeating over and over that not only nearly all our sickness but the greater part of our chronic diseases, are the result of overeating. If people would eat only just enough to keep the machinery of the human form in good trim, these new-fangled maladies that are developing and killing us off would mostly disappear. I believe Terry is right. We pay out great sums of money for our daily food. "Daily *bread*," as we have it in the Lord's prayer, is not the right name for it. We take into our stomachs a great lot that only does us harm instead of good, and then throw away a lot more that might make other people well and happy if they only had it. Children are brought up and trained in this way, and they seem to think there is no other way. I was one of seven children. Our parents were comparatively poor. I come pretty near saying I thanked God they *were* poor; and I do not know but it is right to say it. One of the earliest lessons this father of seven taught us was, to take no more on our plates than we needed, and to leave our plates clean when we left the table. I think one of my older sisters also taught us to put our knife, fork, and spoon in the most convenient place for those who cleared off the table to pick up. Father said we could have all the food we wanted or needed; but in order to wind up with clean plates all around we had better take a little to begin with, and then ask to be served a second time if need be. I guess it was a little bit hard for each one of the Root youngsters to manage to leave his plate clean until he had had some practice and experience; but when the older ones set the example the youngest very soon began to feel a little proud in leaving his plate clean also. In helping ourselves to the bread in a similar way, we managed not to have broken bread lying around the plate. I think my good mother once or twice saved up the broken pieces for certain ones until the next meal. You may think this was a little too close, some of you; but it taught us a wholesome lesson, and started us in proper habits; and even now when I see children leaving broken-up bread and other things scattered about their plates it makes me feel uneasy. Of course, it is not my province to interfere or even advise the parents in such things; but I can tell you about it here on the pages of this journal, and I think no one will feel hurt. I am exceedingly glad that it was my good fortune to have a father and mother who taught me in early childhood to "gather up the fragments that nothing be lost."

Before I was ten years old I was embarked in the poultry business, and it was quite a task for me to scrape up the pennies to buy feed for my biddies. I commenced by saving every thing that chickens would eat; and this taught me *more* useful lessons in gathering up the fragments.

Remonstrance has been made to Mrs. Root and me many times by the younger ones—of course, in a pleasant way—because we spend more time in picking up stuff than it is really worth; and sometimes we are obliged to admit this is true, especially if we were working for wages as most people are. But she says, and I agree with her, that she can not bear to live where things are scattered all about without being picked up. The dooryard, and the rooms in the house, can not be neat and tidy unless things are picked up and put away. Then if these things we gather up and throw away are worth something at some future time we have a double reward for gathering up the fragments. Then, again, do you know how nice it is to have people come to visit you who leave things when they go away just as they found them? Perhaps it is not all appreciated; but when we go to a restaurant or a hotel, or to a summer resort, or to visit relatives, we try to leave every thing where we have been in just as good shape as it was found. I remember once, years ago, a relative with two or three small children paid us a visit. I believe they stayed only one night; but during that brief time those youngsters climbed from cellar to garret, overturned pretty nearly every thing that could be overturned, broke more or less of the furniture, and left a wreck we did not forget for almost a year. Do you think those children were "*born* that way"? That may have had something to do with it; but I think painstaking bringing-up might have made good careful men and women of them, no matter *how* they were "born." If I went through life scattering things right and left, buying valuable property and then throwing it away, and buying and wasting food, clothing, and every thing else in the same way that some people do, I am not sure but I should get tired of this disorderly world and want to die so as to get out of it. I do not think I should commit suicide, but I might wish death would come of itself. I could not think of suicide in my right senses, for that would be flinging back in the face of my heavenly Father the greatest and most precious gift he has ever given to you or me or anybody else—a human life to live.

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if you like it. "The Man Who Knows" knows because of a lifetime in the poultry business.
Miller's IDEAL Incubator
is the result. It comes out of his experience — made to meet his wants when other machines failed. It made him America's most successful poultry raiser.
"Made by the Man who Knows"
TRY 30 DAYS. Keep it if you want it. Send for his big new book on Incubators, Brooders, Poultry and Supplies. It costs you nothing.
J. W. Miller Co., Box 48, Freeport, Ill.

$12.80 For 200 Egg INCUBATOR
Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.
GEO. H. STAHL, Quincy, Ill.

Easy Money is made with a **HAWKEYE Special Incubator**
Try it on our 30 days' free trial plan, before you buy it. Start in the poultry business **NOW**. More money for less work than anything you ever tried. Our **free** catalogue will guide you to success in poultry raising.
Hawkeye Incubator Co. Box 91, Newton, Ia.

A NEVER FAIL HATCHER
The Improved Ormas Incubators and Brooders
are not the "failure" kind, as our patrons testify. See proof in our catalogue, which we send free for the asking. **Incubators from $7 up. Brooders from $4.50 up.** Fully warranted. No better on the market. Easy to operate. Self-regulators. Self-ventilators.
SEND FOR FREE CATALOGUE
BANTA MFG. CO., LIGONIER, INDIANA

CHICKS
...that are hatched in...
IOWA ROUND INCUBATORS
come in big numbers and are healthy and strong. Anyone can see why if they read our catalogue. Even **Heat** and **Exact Regulation** do the work right. *Catalogue is Free, Ask for it.*
Iowa Incubator Co 124 Locust St. DesMoines.

20th Century Wonder
Made entirely of metal and asbestos — fireproof. The
CYCLE HATCHER
is wonderfully efficient. Fifty egg size $5.00. Catalogue free.
Cycle Hatcher Co., Box 223, Salem, N.Y.

Chicks Pop Out Fast
from fertile eggs in an *Ohio Incubator.* Don't rely on cranky hens. Be more certain. Trust eggs to an
OHIO INCUBATOR
and be easy. A few minutes attention daily produces plenty of chicks. The work is easy and pleasant. Send for free catalogue now.
OHIO INCUBATOR AND BROODER CO.
Box 21, Columbus, Ohio.

JUST AS NATURAL as the old hen and a good deal more reliable. Doesn't break its eggs or make its chicks lousy. Doesn't stay off the nest and allow the eggs to chill but hatches every egg that can be hatched.
Beats 'em all.
THE PETALUMA INCUBATOR
is absolutely perfect as to incubator essentials—proper application and distribution of heat and moisture, regulation and ventilation. For 54 to 324 eggs. We Pay Freight anywhere in U. S. Catalog free.
PETALUMA INCUBATOR CO.,
Box 7, Petaluma, California, or Box 7, Indianapolis, Ind.

GOOD RESULTS.
To be absolutely sure about it use the **RELIABLE INCUBATORS & BROODERS** If the eggs are right, you can't make a mistake. Just follow instructions—the Reliable will do the rest. **OUR 20TH CENTURY POULTRY BOOK,** mailed for 10c, tells all about it and other things you should know. We have 115 yards of thoroughbred poultry. **RELIABLE INCB. & BRDR. CO., Box B-49 Quincy, Ill.**

THIS IS THE LIMIT.
$4.50 For a 50-Egg Hot Water, Self-regulating Incubator. Guaranteed to hatch every hatchable egg. **$3** for 50-chick brooder. Only **$7.50 for complete outfit. 30 days' trial.** Send for FREE catalogue.
No agent's profits to pay.
Buckeye Incubator Co.
Box 64 SPRINGFIELD, OHIO.

THE "GEM" MONEY MAKER
hatches chickens at a lively rate—live chickens too—that live and grow into money. Our catalogue tells of "Gem" features no other Incubator has. Write for copy — it is free.
GEM INCUBATOR CO.
Box [illegible] Dayton, Ohio

OLD TRUSTY.
Incubator Johnson's crowning work was made after he had made 50.000 other machines.
40 Days Free Trial.
5 Years Guarantee.
Johnson Pays the Freight.
Johnson has dug to the bottom of poultry raising. Old Trusty runs itself. Get his **FREE** Catalog and Advice Book.
M. M. JOHNSON CO., Clay Center, Neb.

Greider's Fine Catalog
of Prize-Winning Poultry
for 1905. This book is printed in different colors. Contains a Fine Chromo of lifelike fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.
B. H. GREIDER, RHEEMS, PA.

Poultry Magazine,
Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is
The POULTRY TRIBUNE,
nicely illustrated, brimful each month of information on How to Care for Fowls and Make the most Money with them. In fact so good you can't afford to be without it. Price, 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**
R. R. FISHER, Pub., Box 28, Freeport, Ill.

MORE EGGS-LESS FEED
OPEN HOPPER.
Humphrey Green Bone and Vegetable **Cutter**
will double your egg yield and cut your feed bill in half. Guaranteed to cut easier and faster than any other. Trial offer and catalogue free.
Humphrey, Mine St. Factory, Joliet, Ill.

MANN'S LATEST BONE CUTTER
GET MORE EGGS
fetches eggs all winter. Sent on **TEN DAYS' FREE TRIAL** No pay until you prove it cuts easier and faster than any other. Isn't that the fairest offer? Catalogue free.
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Box 37 Milford, Mass.

GET A DANDY
THE DANDY BONE CUTTER
will double your egg yield. Thousands of poultry raisers say so. It costs less, turns easier, cuts faster and lasts longer than any other. Price $5.00 up. **Sold on 15 Days' Free Trial.** Send for book and special proposition.
STRATTON MF'G. CO.,
Box 54, Erie, Pa.

Squab Book Free
Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here is something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
289 Atlantic Ave.. BOSTON, MASS.

Greens' Gilt-Edge Strain

Grand Rapids Lettuce

Our stock of seed is used by many of the largest growers, with entire satisfaction. If interested, write for prices. :: :: ::

We recommend this lettuce for the home garden. Do not confound *garden* culture with *field* culture. In good garden soil, with plenty of water, this lettuce is as good as greenhouse grown. We will send you *free* a package for trial, and a copy of our beautiful new catalog, if when writing you mention where you saw this offer. :: :: ::

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MEDINA, OHIO

THE ONLY GRAND PRIZE FOR VEGETABLES AT ST. LOUIS was won by the products of - - - - BURPEE'S SEEDS!

IF you garden you want THE BEST,—and we shall be pleased to mail you BURPEE'S FARM ANNUAL FOR 1905, an elegant **new book of 178 pages,** which tells the plain truth, with hundreds of illustrations, beautiful colored plates, and describes **superb Novelties** of unusual merit.

Write TO-DAY! A postal card will do, while it is sufficient to address simply BURPEE, PHILADELPHIA

W. ATLEE BURPEE & CO., The World's Largest Mail Order Seed Trade

GOOD SEEDS CHEAP

BEST Ever Grown.

None better and none so low in price, 1c per pkt. and up, postpaid. Finest illustrated catalogue ever printed sent **FREE.** Engravings of every variety. A great lot of extra pkgs. of seeds, new sorts, presented free with every order. Some sorts onions only 50c per lb. Other seed equally low. 40 years a seed grower and dealer and all customers satisfied. No old seeds. Send your own and neighbor's name and address for big **FREE** catalogue.

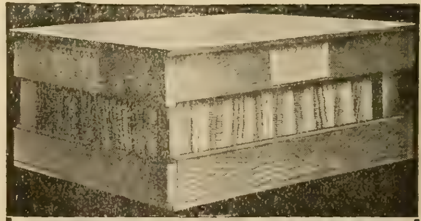
R. H. SHUMWAY, Rockford, Ills.

TREES THAT GROW

Hardy varieties; yield big crops. Grafted Apple, 4½c; Budded Peach, 3½c; Black Locust Seedings, $1 per 1000; Concord Grapes, $2 per 100. We pay the freight. Catalog, English or German, free.

GERMAN NURSERIES
Carl Sonderegger, Prop.

GERMAN NURSERIES
Box 100, Beatrice, Neb.



SHENANDOAH YELLOW

The corn that has made Shenandoah famous. Has outyielded all other varieties of yellow corn wherever tested. A deep grained 100 day yellow corn, ripe in September Will outyield, outshell, and outsell any yellow corn you ever grew. The world's husking record, 201 bu. in ten hours, was made in this corn near Shenandoah, Dec. 8, 1903. Send for free catalog, photographs and samples of this and other varieties of corn. $5.00 worth of seeds free on club orders. Ask about it.

HENRY FIELD, SEEDSMAN, BOX 51, SHENANDOAH, IOWA
THE EAR SEED CORN MAN

Fruitful Trees High in Quality Low in Price

Millions of Fruit and Forest Trees, Apples, Peaches, Cherries, Grapes and Strawberries. R. Mulberry and Black Locust Seedlings at special prices. Freight prepaid on $10 orders. Guaranteed to reach you fresh and bright. Don't miss our free catalogue.

GAGE COUNTY NURSERIES
Box 647 **Beatrice, Neb**

OUR TREES FRUIT and Ornamental

Shrubs, Roses, Vines, Plants, Seeds, Etc.,

Have been the standard of excellence for **Over Half a Century** We offer everything of the best for

Orchard, Vineyard, Lawn, Park, Street, Garden and Greenhouse.

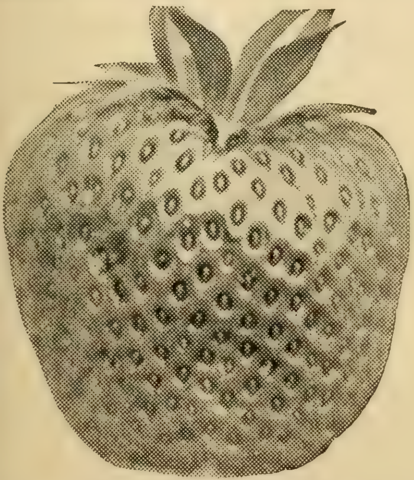
Our aim is to retain all the old varieties that are desirable and introduce all the new things in our line which promise to prove valuable. We send by mail postpaid, **Seeds, Plants, Vines, Roses, Bulbs** and **Small Trees** and **Guarantee safe arrival and satisfaction,** larger sent by express or freight. **A valuable 168 page Catalogue FREE,** send for it and see what values we give for your money. Direct deal will save you all **agents commissions** and **insure you the best. TRY IT.** Correspondence solicited. 51 years. 44 Greenhouses. 1000 Acres.

THE STORRS & HARRISON CO., Box 152, PAINESVILLE, OHIO.

FREE--Great Crops of

...STRAWBERRIES...

and How to Grow Them.



The book that is **Worth Its Weight in Gold** because it tells **How Big Crops of Fancy Berries can be Grown** every year, and **How to Market Them at a Big Profit**. It contains the **Latest Discoveries in Plant-breeding**. and has 110 beautiful engravings of berries and berry fields, showing **Actual Results** obtained by progressive growers. It tells **How to Start a Profitable Berry Farm** with a small capital. It is invaluable to the experienced fruit-grower, and gives **Plain Instructions to the Beginner.** Don't order your plants until you **Read this Book. It is Free.** Send your address to the

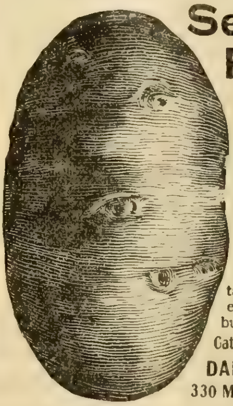
R. M. Kellogg Co.,

Box 400, Three Rivers, Mich.

NET PRICES ON PAGE FENCES

quoted you, and freight to your station. Just say how much fencing, what kind or for what purpose.

PAGE WOVEN WIRE FENCE CO. Box S, Adrian, Mich.



Seed Potatoes

The famous "D & B Line" of Northern Grown Seeds leads in earliness, yield, vitality. Nothing better. Buy direct from growers and save money, For 25 cents (stamps or silver) we will mail our handsome 128 page 1905 farm and garden seed catalog and one pound of our wonderful new white potato, Early Bird. Best and earliest grown. Average yield 350 bu. Sold only with catalog. Catalog alone, free. Write today.

DARLING & BEAHAN,

330 Michigan St., PETOSKEY, MICH.

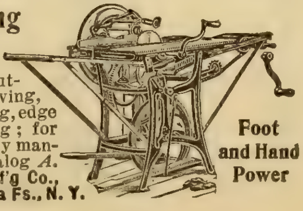
850,000 GRAPE-VINES

69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

50,000 HAYMAKER New Money-Making Raspberry. Net profit $400.00 per acre. Finest catalog. **W. N. Scarff, New Carlisle, O.**

MUSICIANS get in touch with "EVERYTHING MUSICAL" by asking for our catalogues. We Import and Wholesale all sorts of instruments and publish all kinds of music, and our prices rule the retailer out. Buy everything you want from our catalogues. Every day's a bargain day at this big music bargain house. Write for catalogues. Ask for list of SECOND HAND instruments, repaired and made almost as good as new. **H. E. McMILLIN**, 106 Superior St., **Cleveland, O.**

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.

The Seneca Falls M'f'g Co., 44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

1884 **1905**

New 64-page catalog for the New Year now ready

For You.

Twenty successful years manufacturing Bee-supplies and raising Italian Bees and Queens.

J. M. Jenkins,
Wetumpka, Ala.

Root's Bee Supplies

at Root's prices, but at Baltimore instead of Medina. Send us your orders, and save time and freight. Large stock—prompt shipment.

RAWLINGS IMPLEMENT CO.

Wholesale up-to-date Farm Implements and Vehicles,

209 S. Charles St., **Baltimore, Md.**

We didn't burn out.

To the Western Bee-keepers and Bee-hive Dealers.

THE CALIFORNIA LUMBER AND MILLING CO.

is now prepared to supply your wants for *EVERY KIND AND STYLE OF BEE-HIVE* used in the *WEST.* We also make *HONEY SHIPPING-CASES* of all *KINDS.*

Our work is guaranteed to be absolutely *SMOOTH,* and *ACCURATE* as to *MEASUREMENTS.*

All lumber used in our goods is thoroughly dry-kilned.

Office and Salesroom:
738 Mission St.,
SAN FRANCISCO, CAL.

Mill, Factory, and
Dry Kilns:
CORBIN,
WEST BERKELEY, CAL.

Write for catalog and price list.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

We will allow a cash discount of 3 per cent on orders sent in during Jan.

Send for Our FREE New Illustrated Catalog and Price List.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee=keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey=boxes, Weed Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

## EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

During this month (January) I will offer a **Special Discount of 3 per cent for Cash orders,** for goods wanted for next season's use. During February the discount will be 2 per cent. These discounts apply to orders for hives, sections, foundation, etc., but not for honey-packages or shipping-cases, or goods for immediate use. One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.*

The new edition of A B C of Bee Culture is now here and is ready for immediate distribution.

HONEY.

I have on hand a large stock of extracted honey in 60-lb. cans, white-clover or water-white alfalfa. A single can of either at 8½c per pound. Two cans in a box at 8c per pound. Bee-keepers having a demand which exceeds their supply can here avail themselves of an opportunity.

The finest and most accurate goods that the world produces. Prompt shipments and low freight rates. A positive guarantee that every detail shall be entirely satisfactory. We make mistakes, but we always correct them without expense to our customers. This is what you get when you send your orders here.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513==515 Massachusetts Ave., INDIANAPOLIS, IND.

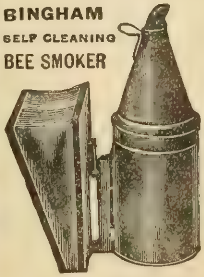
MONDENG MFG. CO. BEE-KEEPERS' SUPP'S

We are Manufacturers of **Bee-keepers' Supplies**

We are now able to quote lower prices than ever before. Highest quality guaranteed. Our New Catalog just out. Write for it. Compare prices with others. 15 years' experience. Not in the combination. Improved machinery.

Capacity, 100,000 sections per day. 1000 lots at wholesale prices. Sections and shipping-cases by the carload. Prompt shipment. *Hives, Extractors, Feeders, and all Supplies used by bee-keepers.*

MONDENG MFG. CO.,
147-149 Cedar Lake Road, MINNEAPOLIS, MINN.



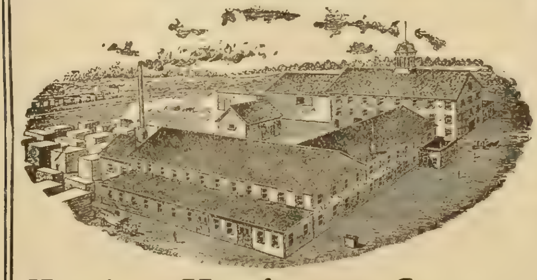
If You Want a Smoker

That goes without puffing, clean, durable and handy, oldest, newest, and embracing all the improvements and inventions made in smokers, send for circular to

T. F. Bingham, Farwell, Mich.

Frankfort, Mich., Nov. 20, 1904.
T. F. BINGHAM, Farwell, Mich.

Dear Sir:--Replying to your favor, I have 90 acres of peach-trees. the bees pollenize the flowers and are a great benefit to them. The smoker you sent last spring is the best I ever used. W. G. VOORHEIS.



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

DISCOUNTS FOR EARLY ORDERS.

DEALERS IN OUR GOODS.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.
Southwestern Bee Co., San Antonio, Tex.

Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, -:- Augusta, Wis.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,

Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

OUR SPECIALTIES

Cary Simplicity Hives and Supers;
Root and Danzenbaker Hives and Supers;
Root's Sections, Weed Process Foundation,
Bingham Smokers;
Bees and Queens in their Season;
Thirty-two-page Catalog Free.

W. W. Cary & Son, Lyonsville, Mass.

For Your **Bee Supplies, Berry Boxes and Crates**

Send to the

SHEBOYGAN FRUIT-BOX COMPANY, SHEBOYGAN, WIS.

.....Special Notice to Bee-keepers.....

BOSTON

Money in Bees for You.
Catalog Price on

Root's Supplies

Catalog for the Asking.

F. H. Farmer, 182 Friend St. Boston, Mass.

UP FIRST FLIGHT

The Graham Hyde Bee Company Specialties

FALCONER BEE-KEEPERS' SUPPLIES. At factory prices. We have Falconer's Branch House covering the entire Southwestern States and Mexico. Send for special catalog, etc.

BEES AND QUEENS. All leading races. Bees and nuclei in any quantity for distant shipments a specialty. Send for circular and prices.

HONEY AND WAX bought and sold. Honey-cans in season. Be sure and get our prices.

OUR MOTTO. To have everything the bee-keeper needs, and to buy his products in return. Correspondence earnestly solicited.

The Graham Hyde Bee Company,
San Antonio, Texas.

Successor to the Hyde Bee Supply Co.

WISCONSIN
BASSWOOD
FOR SECTIONS

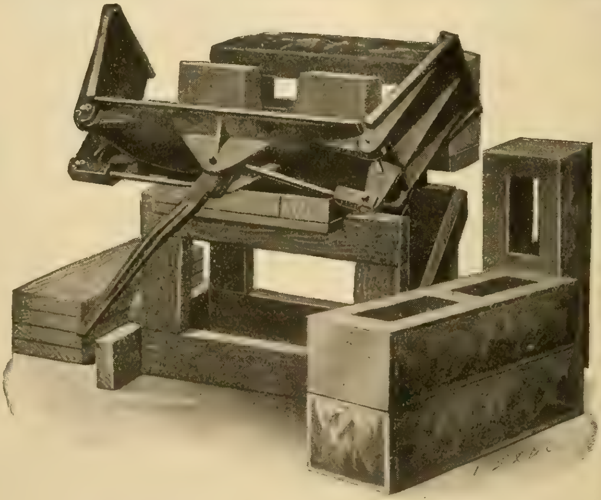
We make them and the very best of **Dovetailed Hives. Shipping-cases**, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

Concrete

is constantly gaining recognition as a building material. The most popular form is Hollow-block Construction.

As a result of practical work and study we are able to sell you a machine—simple, durable, easy to operate, and which makes all the blocks necessary in the construction of a building.



A building constructed of this material is **cheaper than brick and more durable than stone.**

We are operating a successful building-block plant in Medina, opposite The A. I. Root Co. *Write us for prices of machine, etc.*

Medina Concrete Co., Medina, O.

Special Notices by A. I. Root.

GOOD SEED CORN.

My attention has just been called to this matter by a package of ten different samples of beautiful grains of seed corn from Henry Field, seedsman, Shenandoah, Iowa. See advertisement in this issue. He informs us they are sending out *400,000* similar samples with their free catalog. A neighbor of ours, up near the cabin in the woods, a year or two ago sent off to some seedsman for a particular variety of seed corn that was highly recommended. I do not remember how many acres he had, but his corn was so much better in every way than any other in that vicinity that his crop was worth toward $100 more than had he planted the seed in common use in his neighborhood. I saw the corn, and feel satisfied his statement was not exaggerated. The year after, the season not being as favorable for that variety, it did not do as well; but he made a tremendous profit in the transaction, notwithstanding. Be *sure* you have the best seed.

GREAT CROPS OF STRAWBERRIES, AND HOW TO GROW THEM.

The above is the title of quite a valuable book on growing strawberries. Kellogg's establishment, Three Rivers, Mich., is one of the largest in the world for growing plants. Not only irrigation but every thing that will contribute toward growing strong plants is brought to bear in this great establishment. I have been told by different friends that it is quite a treat to look over the grounds, especially in the busy season. If you can not do that, send and get the book and look at the beautiful views of fields of strawberries in all stages of growth. You need not be afraid to call at the strawberry farm. See the following notice to visitors, which I copy from the catalog: "Visitors are most cordially welcomed at our grounds at any time. You will be entertained free, and conducted through the grounds by ourselves."

PAROID AND NEPONSET ROOFING.

Few things have given us so much satisfaction as this roofing material, not only for hive-covers but for all kinds of out-buildings that get rickety. The house for my automobile was originally built for a cold greenhouse. The north side and the walls were made of hotbed shutters. These shutters got to be so old and rickety I thought I would have to tear the whole thing down; but with the paroid roofing I not only made it wind and water tight, but so handsome a structure that I think I shall have to give you a picture of it very soon. As the house is built over an underground pipe conveying exhaust steam it never freezes inside. Our poultry have a roosting-place in one end, and a daytime run under some sashes right over this same steam-pipe. This roofing is easy to handle, not affected by any kind of weather, and is ever so much cheaper than to tear down old buildings and put up new. I am sure it will pay you to send for the little book, "Building Economy." See advertisement in this issue.

A GOOD WORD IN REGARD TO THE FLYING-MACHINE.

Dear Friends:—It was with intense interest that I read in GLEANINGS for Jan. 1 the first notice of a practical flying-machine that has ever been published. You are to be congratulated. It seems appropriate, too, that such notice should appear in the greatest journal in the world devoted to the interests of the honey-bee, the only *flying* insect of economical value to man. We shall hope that our old friend A. I. Root may have a more intimate connection with this wonderful invention than now appears.

G. L. TINKER, M. D.
New Philadelphia, Ohio, Jan. 11.

GLEANINGS AS AN ADVERTISING MEDIUM.

Recently you had a little notice in this magazine of our battery-tester, and we were very much surprised at the number of inquiries and orders which resulted from it. The sales from this one little adv't were beyond our expectations.

Yours respectfully,
A. L. DYKE AUTO SUPPLY CO.,
St. Louis. ROY A. BRITTON, Sec'y and Treas.

I am much interested in all departments of GLEANINGS. The bushel boxes bought of you are a great help in my business. I realize that The A. I. Root Co. has been of great value to the whole world, and I am glad it is likely to live for some time yet.

FRANK WARING.
Philipsburg, Pa., Nov. 16.

Convention Notices.

The annual convention of the Wisconsin State Bee-keepers' Association will be held in the Supervisor's room, Court-house, Madison, Wis., Feb. 1 and 2.

GUS DITMER.

The Michigan State Bee-keepers' Association will hold its annual convention Feb. 23 and 24, at the Eagle Hotel in Grand Rapids. The Eagle Hotel is located at 65 to 71 North Market St., corner of Louis St., one block south from Monroe St. It will give a rate of $1.50 per day, and furnish a room free for holding the convention. The Michigan State Dairymen's Association will meet in Grand Rapids at the same time, and advantage may be taken of this fact to secure reduced rates on the railroads. When buying your ticket, ask for a certificate on account of the meeting of the State Dairymen's Association. The secretary of the Dairymen's Association will sign this certificate which will then enable the holder to buy a return ticket for one-third fare. Several associations often meet in this way, at the same time and place, the secretary of one association signing the certificates for all of the associations, the same being done with the consent and knowledge of the railroads; it simplifies matters. Grand Rapids is the second city in the State, easily accessible from the north, south, and central parts of the State, in the heart of a good bee country, and, with the low rates assured, there should be a large attendance.

W. Z. HUTCHINSON, Pres.

New York and Philadelphia.

Bee-keepers of the Middle East and others interested should call at our stores and inspect our stock of Supplies. A full line on hand, including Bees, Queens, a full line of Supplies, Books, Magazines, etc. Everything required by a bee-keeper.

The A. I. Root Co.,
44 Vesey St. P. O. Box 1037. New York.
10 Vine St., Philadelphia.

RUBBER STAMPS.

Stamp your name and address on your letters. You will save yourself, as well as others, lots of trouble. A two-line stamp costs but **25c.** Many styles and prices given in our rubber-stamp catalog. Send for it to day. ¶ A stamp is neater than a label on sections, etc.

THE A. I. ROOT COMPANY, Medina, Ohio.

Diseases of Bees;
THEIR TREATMENT AND CURE.
Particulars sent free. Address
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ENYART'S COMB-FOUNDATION GAUGE gauges 18 different shapes of starters. Easy to cut 100 starters per minute. Circular free.
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WANTED.—To send you two bee-journals for the price of one. Gleanings and the Rural Bee-Keeper, both for $1. Address **W. H. PUTNAM, River Falls, Wis.**

GLEANINGS ONE YEAR, and a Warranted Italian Queen, for $1.25.

In addition to above will give an extra queen for every ten subscriptions. Perhaps you can get sufficient subscribers to requeen your whole apiary.

Remember, Quirin's Queens are hardy. We have 450 swarms, nearly all are wintered on summer stands; most of them are on shallow frames at that. Above queens will be sent any time after June 15, but your orders must be sent in before April 1. If you wish, you can also send us your order for supplies; make same from any standard catalog, and address to

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, OHIO.

IT PAYS YOU WELL

To get your bees and queens from the South. All reports go to show that bees and queens shipped from the South (especially those reared by us) give larger yields of honey every year than those that are wintered in the North. Let us begin now to arrange to furnish you all the queens and bees you may need the coming season. We make a specialty of bees in carload lots. One, two, and three frame nuclei and full colonies furnished at all times. Get our prices before you buy elsewhere; we will save you time and money. We are selling agents for more than 300 colonies of bees the coming season, besides our own stock, which is complete.

Untested queens, from now until Feb. 1st, $1.00 each, or $10.00 per dozen. Tested, from $1.25 to $2.00 each. The best breeders, $3.00 each. Should you wish to buy bees and locate in South Texas, write us. We will fit you out in what you want. Our 1905 catalog describes the six different races of bees we breed. Write for it.

THE BEE & HONEY CO., W. Atchley, Prop., Box 79, Beeville, Bee Co., Tex.

GOOD QUEENS

can always be had by sending your orders to us. Untested queens, $1.00 each; $4.25 for six, or $9.00 per doz. Tested, $1.50 each. Nuclei and bees by the pound a specialty. Write for prices. Wholesale orders solicited. We fill wire orders from 100 to 300 queens to responsible parties with 10 hours' notice. Safe arrival and satisfaction guaranteed. We have Carniolan, Holy Lands, Cyprians, Goldens, and the old-fashioned three-band Italians. All reared in separate fields 10 to 20 miles apart. All the Holy Lands and Cyprians in this part of the country are from our strains and our importations. Don't fail to consider quality and our thirty years' experience. Best breeders, $5.00 each.

The Jennie Atchley Co.,
Box 18, Beeville, Bee Co., Texas.

Leather-colored Queens

Extra good ones, carefully reared. June, $1.00; six, $5.00. Later, 75c; six, $4.00. Liberal reduction for large orders. Absolute satisfaction guaranteed.

S. F. TREGO, Swedona, Ill.

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LAWS' ITALIAN AND HOLY LAND QUEENS.

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. Circular on application.

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Try Me

and see if queens raised by a little boy, 14 years old, are not as good as any. I have been brought up in the queen-rearing yards. Untested, $1.00 each; $4.25 for six; $9.00 per dozen. Safe arrival and satisfaction guaranteed. Money-order office Oakville, Texas.

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Hall's Superior Golden Strain, Hall's Leather-colored Strain, Hall's Gray Carniolans,

mated to the best selected DRONES; bred with the greatest care, by an old experienced hand, from imported and homebred queens. If you are looking for a place to get first-class standard-bred queens, give us a trial order. We are booking orders now—first come first served. List will be ready soon.

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for 1905. 15 years' experience. Orders booked now. Golden stock.

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Poultry Punches,
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October---6 per cent
November---5 per cent
December---4 per cent
January---3 per cent
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This applies only to Hives, Sections, Smokers, etc.

We buy comb and extracted honey; if you have any to offer, state kind, quantity, and lowest price delivered here.

We also have a large supply of honey always on hand, in cans and barrels. Should you be in need of any, let us quote you prices.

How About a New Incubator this Fall?

We have them on hand, and can ship promptly; send for catalog if interested.

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New Goods----Big Stock,

NEW WAREHOUSE,
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tween Wash ore.

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Daily servi ly) between
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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

SPECIAL PRICES for January orders. Give me a list of goods wanted, and I will quote you prices.

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The kind that comes by using the best hives, the best sections, the best of everything (Root's Goods).

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sold during the past season.
(ITS 27TH YEAR.)
We guarantee satisfaction.

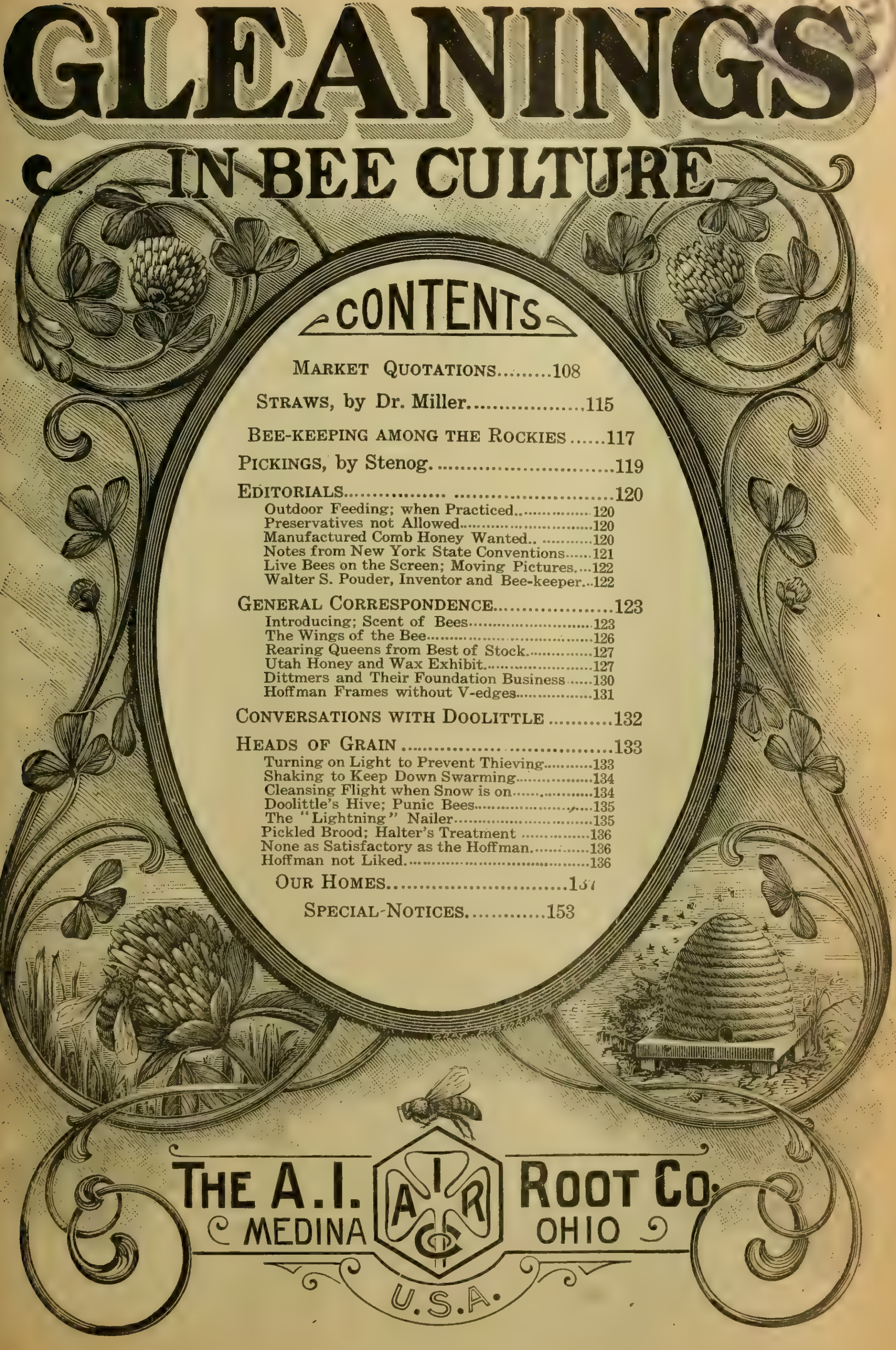
Bee Supplies of all Kinds.
Beeswax Wanted at all Times.

Three per cent discount this month.
We work wax into foundation.
Catalog free.

DADANT & SONS, Hamilton, Ill.

Volume XXXIII. FEBRUARY 1, 1905 Number 3

GLEANINGS IN BEE CULTURE



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Within a hundred miles of me are over ¾ of the bee-keepers of Michigan. I am on the Pere Marquette R. R., which completely covers this region. Root's Goods, Factory Prices, Prompt Service, Low Freight.

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Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

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Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A NO. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

NO. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

NO. 2.—Three-fourths of the total surface must be filled and sealed.

NO. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is there will be "Fancy White," "No. 1 Dark," etc.

TOLEDO.—The market on comb honey remains very quiet as yet. The prices are about the same as last quotations. Fancy white comb is selling at 13@14; No. 1, 12@13, with no demand for amber. Extracted white clover, in barrels, 6@6½; in cans, 7½@8½. Beeswax, 26 and 28.

GRIGGS BROS.,
Jan. 18. Toledo, Ohio.

ST. LOUIS.—The situation in the honey market is absolutely unchanged since our last. Sales are so small that they barely affect the quotations, which are more or less nominal. We quote as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11; broken or leaking honey, 7@9. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5½@6; Southern in barrels, 5@5½. Beeswax, prime, 28½ per lb.

R. HARTMANN & CO.,
Jan. 19. 14 So. Second St., St. Louis, Mo.

CHICAGO.—The trade in honey is not large, and the offerings, on the contrary, are quite liberal; this makes an easy mark for the buyer. Fancy white comb, 12½@13; No. 1, 12@12½; off grades, 10@11. Extracted white, 6@7, according to flavor, quality, and package—any thing off, about 1c lower; amber grades, 5½@6½. Beeswax, 29@30.

R. A. BURNETT & CO.,
Jan. 24. 199 South Water St., Chicago, Ill.

BUFFALO.—Demand is very slow for honey. Offerings are a little more liberal, and more pressure to sell. Shading of price does not make it sell any faster. We quote fancy white comb, 13½@14; A No. 1, 12@13; No. 1, 12@12½; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 10@11; No. 2 dark, 9@10. Extracted, white, 6½@7; amber, 6@6½; dark, 5½@6. Beeswax, 28@30.

W. C. TOWNSEND,
Jan. 17. Buffalo, N. Y.

DETROIT.—Demand still very light for both comb and extracted honey. Fancy and A No 1, white, 12½@13; fancy and No. 1, dark, 10@10½. Extracted, white, 6@6½. Beeswax, 25@26.

M. H. HUNT & SON,
Jan. 20. Bell Branch, Mich.

KANSAS CITY.—The demand for honey is slow; $2.25 per case seems to be the top of the market for fancy white comb honey—other stock selling in proportion. White extracted, if sweet and in good condition, will bring 6½. Beeswax slow sale at 28. There has been quite a lot of honey arriving lately that is sour and fermented.

C. C. CLEMONS & CO.,
Jan. 19. Kansas City, Mo.

SCHENECTADY.—There is a slight improvement in demand but prices are lower, especially on buckwheat; extracted unchanged.

CHAS. MCCULLOCH,
Jan. 19. Schenectady, N. Y.

SAN FRANCISCO.—Honey, comb. per lb., 10@13. Extracted, water white, 7; light amber, 6; dark amber, 5. Beeswax, per lb., 28@29.

ERNEST SCHAEFFLE,
Jan. 24. Murphys, Cal.

BOSTON.—The market is without change since last writing. The demand continues light, and the supply is more than ample. We quote as follows: Fancy white, 16; A No. 1, 15; No. 1, 14. Extracted, 6@8, according to quality

BLAKE, SCOTT & LEE,
Jan. 9. 31-33 Commercial St., Boston, Mass.

FOR SALE.—6000 lbs. clover and basswood honey in 60-lb. cans.
C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—1000 pounds white comb honey at 13 cts. Speak quick.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Extracted clover honey in barrels, kegs, and cans. Write for price. Sample, 7c.
JULIUS GENTZ, Shawano, Wis.

FOR SALE.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—A few 160-lb. kegs of buckwheat extracted honey. Sample free.
EARL RULISON, Esperance, N. Y.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED—Comb and extracted honey. State price, kind, and quantity.
R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

WANTED.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Clover extracted honey in cans or barrels; send sample, and state quantity, whether in barrels or cans, and price delivered at Chicago or Medina.
THE A. I. ROOT CO., Medina, O.

WANTED.—Buckwheat honey in kegs or cans. Send sample, and state price delivered at Medina, New York, Chicago, or Philadelphia. Mention quantity you can furnish.
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COMPLETE STOCK OF BEE SUPPLIES—LEWIS CO.'S AT FACTORY PRICES
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THE FRED W. MUTH CO.
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486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

Convention Notices.

There will be a bee-keepers' convention at River Falls, Wis., Feb. 8, 9. On the evening of the 8th there will be a stereopticon lecture by N. E. France. All bee-keepers are invited to participate. A good program has been provided.

W. H. PUTNAM.

The Michigan State Bee-keepers' Association will hold its annual convention Feb. 23 and 24, at the Eagle Hotel in Grand Rapids. The Eagle Hotel is located at 65 to 71 North Market St., corner of Louis St., one block south from Monroe St. It will give a rate of $1.50 per day, and furnish a room free for holding the convention. The Michigan State Dairymen's Association will meet in Grand Rapids at the same time, and advantage may be taken of this fact to secure reduced rates on the railroads. When buying your ticket, ask for a certificate on account of the meeting of the State Dairymen's Association. The secretary of the Dairymen's Association will sign this certificate which will then enable the holder to buy a return ticket for one-third fare. Several associations often meet in this way, at the same time and place, the secretary of one association signing the certificates for all of the associations, the same being done with the consent and knowledge of the railroads; it simplifies matters. Grand Rapids is the second city in the State, easily accessible from the north, south, and central parts of the State, in the heart of a good bee country, and, with the low rates assured, there should be a large attendance.

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There are several good incubators on the market, and they are offered at very reasonable prices; in fact, they are so very low that we are surprised that every family does not have one. But there is one machine that is in a class all by itself, and all on account of one feature, and a most important one too—a removable chick-tray and nursery. After the chicks are hatched they drop into the chick-tray below the eggs, and when the hatch is all over this tray can be pulled out like a drawer and the little chicks carried to the brooder without handling.

By taking out this tray the whole interior of the machine is exposed. Every nook and corner is in sight, and can be thoroughly, quickly, and easily cleaned. The incubator referred to is the Gem, made by the Gem Incubator Co., Box 53, Dayton, Ohio. They have a new, large, profussively illustrated catalog that is free for the asking, if you mention GLEANINGS. Send a postal to-day.

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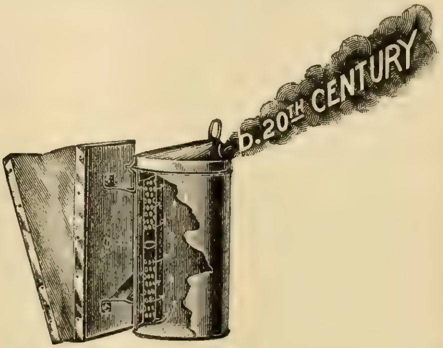

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To prevent the adulteration of honey.

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after shaving? Is it easy and pleasant? It depends on whether you use

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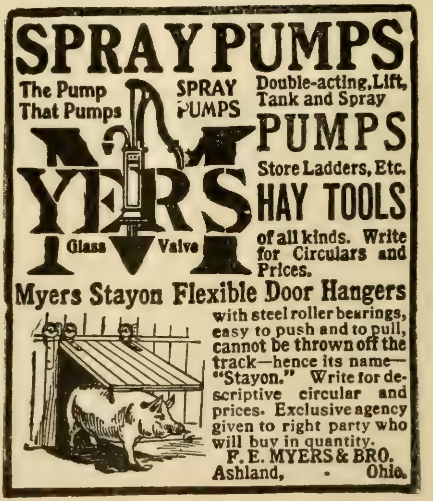

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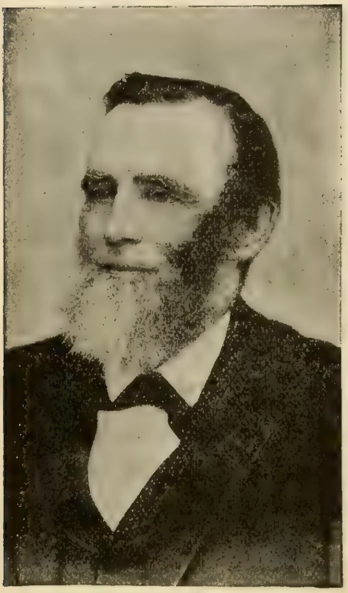

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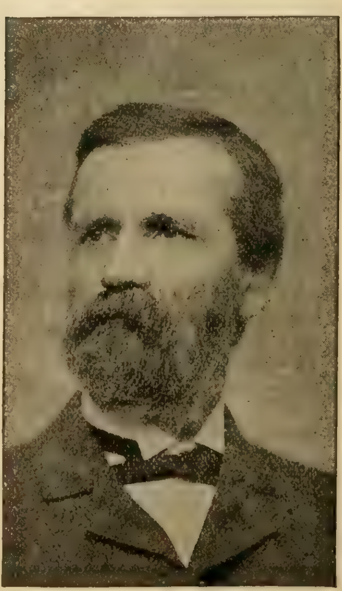

HON. EUGENE SECOR,

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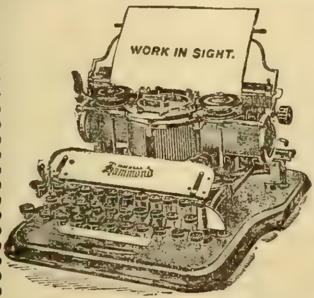

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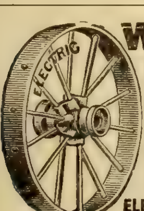

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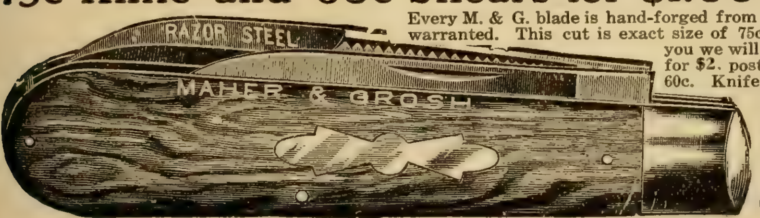

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO.

Vol. XXXIII. FEB. 1, 1905. No 3

Stray Straws

By Dr. C. C. MILLER.

THE ADMINISTRATION of railways of Alsace-Lorraine urges its employees to engage in bee-keeping, engages to aid them in starting, and will sow seeds of honey-plants along its lines.—*L'Abeille Alpine.*

TO CLEANSE WAX it is recommended, in *Pfælzer Bienenzeitung,* to boil in salt water, two or three repetitions making it beautifully clear. Wonder if that will work on this side. [We commonly use in this country acid to clarify dirty wax. We have never tried salt, but I presume it would do the work. Will try it.—ED.]

IN GOERZ AND GRADISKA, Austria, says *Bienen-Vater,* bees can be located less than 33 feet from the highway or the premises of another only when the entrance of the hive is ten feet high, or when a fence, hedge, or other obstacle at least ten feet high obstructs the passage of the bees. Isn't that law liberal enough for anywhere?

WM. W. WHITNEY writes that he has never had paralysis among black bees or hybrids, but has among Italians, and asks whether Italians are more likely than others to be afflicted with paralysis. I've had paralysis among hybrids; I think never among blacks; but then, I haven't had blacks since I had paralysis.

PASTOR FLEISCHMANN says, in *Illustrierte Monatsblætter,* that Prof. Frank Benton first introduced American methods of queen-rearing into Germany. He says W. Wankler, in his pamphlet on queen-rearing, differs from American methods only in emphasizing selection for improvement of stock—a good thing to emphasize anywhere, only proper selection can hardly be made except in connection with honey-production.

C. E. WOODWARD, page 77, is afraid I'll trip him up by saying "there never was and never will be an effect without a cause." I had never thought of doubting that before, friend Woodward; but your fear of being tripped up on it made me look about for exceptions to the rule, and I didn't have to go far. In the next sentence you're "on to me as big as a cart-wheel." Now, I'm sure there's no cause for your seating yourself on me so heavily, so there's an effect without a cause, isn't there?

HEREAFTER, any bee-keeper who gets into a lawsuit can't count on the National to bear more than half the expenses of the same. With all the precedents established by the National, there is some question whether any of its money ought to be spent on lawsuits. It can be spent in better ways. [This is better; and I am not so sure but it would be better still if the amount were limited to a certain small definite sum. I believe the Association should bend its energies to foster better legislation to protect the bee-keeper and to keep down adulteration.—ED.]

HENRY E. WOEST asks what counteracts the soda in six of the recipes in Honey Leaflet that have no sour milk or other acid. I first thought, "Isn't there acid enough in the honey?" but not being sure of the answer, I turned the question over to the women. "Why, soda is often used in baking, without any acid." "In what?" "Oh! in lots of things." "Well, but in what?" They opened at random Marion Harland's "Common Sense in the Household," and, beginning at page 323, showed me five recipes within three pages that had soda but no acid. I gave it up.

HONEY pancakes contributed by Henry E. Woest: 1 pint flour; heaping teaspoonful baking-powder; big pinch salt; ½ pint extracted honey. Mix to a thin batter with water or sweet milk. Sift flour, baking-powder, and salt together, then stir in honey and water or milk. Griddle must not be too hot, or cakes will burn. Part of our family like them, part don't. [I suppose it is expected, of course, that a nice grade of extracted honey shall be spread on the pancakes to be eaten. We tried this recipe at our house, and we all voted that we had tasted better cakes. They were too *soggy* to suit us. To our notion, the honey on the cakes *after* they are baked makes a better combination.—ED.]

IF YOUR BEES are like Mr. Doolittle's, apt almost all to return to their old home, you may find it best to form nuclei as he describes, page 79. Before taking so much trouble, however, it may be worth while to see whether your bees are not like mine. Merely take frames of brood and bees from any colony that has been *queenless* a day or more, and put them where you want them to stay, adding some extra bees. Mr. Doolittle and I have never been able to come to any understanding as to why our bees act so differently, but I'm telling you about what I've tried hundreds of times. Even bees that are not queenless don't leave the hive as badly as his do.

TWELVE BEES were freed simultaneously with twelve pigeons at the same distance from their homes, five kilometers. The first bee beat the first pigeon by a quarter of a minute. Three other bees beat the second pigeon, the remaining bees and pigeons being on an equality.—*Patriote Illustre*. [This is interesting, but I should like to know how long it took the first bee to make those five kilometers; and, further, what would be the average flight of all the bees for that distance? We have commonly said that bees can go a mile a minute; and after seeing these big racing automobiles whizz by, almost at arm's length, at the rate of a mile in 53 seconds, on an oval track, I tell you it is fast time.—ED.]

"BEES, NATURALLY, are not taught, but learn their ways of life by imitating those before them," says Ralph P. Fisher, page 83. If that means merely that they do things in the same way their predecessors have done, there can be no exception to the statement. If it means there's any conscious imitation on the part of the bees, trying to do things as they have seen others do, facts will hardly carry it out. A case was reported in one of the foreign journals in which some bees that by no possibility could have seen comb built by other bees made a perfect job of it the first time trying. [Say, doctor, you ought to label this as a *goak*—as if we had to go clear across the water and hunt over the foreign journals to prove that bees know how to build comb without being taught or seeing others do it!—ED.]

A FIELD-BEE from a diseased colony, returning from the field and entering a wrong hive, will carry the disease into that hive, says C. E. Woodward, page 77. But if it starts out empty, and returns with only nectar from the flowers, can it bring disease? You may remember that M. M. Baldridge's cure for foul brood depends on the bees leaving the diseased hive through an escape and returning from the field to a hive in which there is no disease. [Mr. Woodward's statement is entirely correct. This is the experience in our own yard, which has been demonstrated over and over again; but whether, when the bee starts out empty, and returns only with nectar from flowers, it will bring disease, is something I can not answer. I should be a little afraid of it. It would take more time for a bee to get rid of the germs than a mere flight to the field would take.—ED.]

I LEARN, pages 64 and 83, that at Medina you pick up a hive with hive-hooks, and two men carry it out of the cellar. That will work nicely; but here one man does it just as quickly, and with nothing but his hands. But then my hives have cleats full width of hive. Sometimes two men carry two hives on a handbarrow. A wheelbarrow doesn't work so well where steps go down into the cellar, as here. [Yes, we use hive-hooks, and I might have said that one man with these same hooks can carry in one hive. Where hives are not too heavy, this is the way they are carried in if the bottom-board is loose; but when I spoke about hive-hooks I was talking about hives with loose bottom-boards, and you can, therefore, see it would make no difference whether the cleats were long or short on the hive. The hooks would have to be used just the same or else the bee-keeper would have to bend clear down and reach his fingers under the bottom-board, and pick up hive and all. This is no easy job.—ED.]

BRICK BUTTER is the way you get the best butter here, right in the heart of the noted Elgin dairy region. The grocer wraps up in prepared paper a pound brick, and there you are. Well, I've had a brick of the same kind sent from Medina, only, instead of butter, it's candied honey. It's great at least for winter trade—ought to increase sales no little. [Brick honey is a new product of the apiary. Until Mr. Aikin kept hammering at the problem of selling candied honey to consumers direct, very little effort was made to sell honey in that form. Now, fortunately, times are changing. The brick and bag honey are finding a certain and positive demand in many quarters; and the more the sale of these is encouraged, the less distrust will there be when liquid honey clouds or turns to a granulated condition. The fact is, bee-keepers have for years sought to keep their honey in the liquid condition. Consumers have become educated to honey in that form; and when, perchance, it does cloud or granulate, as it must necessarily do in spite of all that can be done, they are distrustful at once. I believe it is high time we go at the problem from the other side. Show the public that honey in the candied condition is the *natural* state of most honey in winter. Consumers do not know that yet; and because they do not know it they may refuse to buy any more bottled honey because, forsooth, they have a little at home that has "turned to sugar," as they call it. —ED.]

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

BLACK BEES AND PICKLED BROOD.

In my first experience with pickled brood, some years ago, it was very evident that, the nearer the bees were to blacks, the more severely they were affected. Pure Italians suffered comparatively little, though they were not exempt from the disease. Here there is scarcely any thing but pure Italians, yet the disease is quite prevalent, though never very serious. In all my experience with the disease it has always disappeared entirely during a good honey-flow.

❧

TEMPER OF EXTRA-YELLOW BEES.

Extra-yellow bees appear to have been produced in two ways: First, by careful selection inside of the Italian race; second, by crossing the Italians with the Eastern races, such as the Cyprian and Holy Land. I have had both. The latter were considerably crosser than the average Italians, while some of the former were the gentlest bees I have ever owned. I used to have a colony of these that I was in the habit of handling, for the benefit of visitors, without smoke and without any protection, and I believe I was never stung by them.

❧

BASSWOOD IN TEXAS.

It seems that there are localities in Texas where basswood is abundant. I have been told this by those who have been there and say that there are large tracts of country covered with it. Reports at the Texas convention indicate that it yields honey just as freely as in the Northern States. It appears to be nice honey too. Several years ago some of the Canadians argued that, the further north basswood honey was produced, the better was its quality, and they claimed superiority for their product over that produced in the States on that account. I wonder if the Canucks did not manufacture that theory out of whole cloth. Will some of the Texans tell us more about the quality of their basswood honey? Manufacturers of sections will please take notice that these Texas basswood forests will put off for a while at least the time when there will be no more basswood for sections.

❧

HOFFMAN FRAMES.

The decision of The A. I. Root Co. to abandon the V edge on the Hoffman frame and to make the end-bars of thicker material will go a long way toward remedying some of the worst faults of the frame. The thicker ends will permit of longer nails, which will make a more substantial frame. More than this, though, it will do away with all the trouble that now arises from putting the parts of the frame together improperly. The ends can not slide past each other, making the combs closer together than they ought to be, as is common with the present styles. This makes them nearer "fool proof," as they can not be nailed up wrong. The edges of the end-bars will not be nearly so likely to split off. Now, if means can be devised to compel the crowding of the frames up close together every time they are separated, and keeping them so at all times, the frame will be pretty nearly all that has been claimed for it by its admirers. For this purpose I think there is nothing so promising as a good spring. Just what this spring should be like will require a little experimenting to determine. I have examined a number of patterns sent me for that purpose. Some of these are all right, except that the proper degree of stiffness will have to be determined by actual trial, after which I shall be ready to report further.

❧

TWO FOLLOWERS FOR HOFFMAN FRAMES.

It is hard for me to tell just what C. E. Woodward is driving at on page 1157. First, one would suppose he was writing about the use of two followers in the brood-chamber, with Hoffman frames, but he follows this up by saying that, "Even in Cuba it would be better to have two followers in comb-honey supers." Now, so far as I know, I have said nothing either for or against the use of two followers in comb-honey supers. Then he says, "Of course, I am speaking of close-fitting followers." Does he mean that the ends of the followers should touch the inside of the hive? He advises me, too, to use a break-joint honey-board to avoid having to pull frames to pieces in getting out the first one. I have used break-joint honey-boards ever since they were invented, and I can not see how they are going to prevent the frames from being fastened together with propolis or with brace-combs, which are all below the upper surface of the top-bar. My only objection to two followers would be the difficulty of keeping the frames in as close contact as can be done with one. If I were using ten-frame hives, I would rather use nine frames and two followers than ten frames, but I would rather use one substantially made follower than two flimsy ones. A correspondent on page 1165, in speaking of two followers, brings up a point in hive-construction that has not been touched on before. He says that, if only one is used, the comb next to the hive "is often pasted to the hive because the space is too small." This is true of the most of the hives in use. I have come across a few hives in which some provision had been made for keeping the first frame a proper distance away from the side of the hive by means of two little cleats nailed on at the proper points: but in nearly all cases the first frame is shoved directly against the side of the hive, with the result that the comb is either fastened to the side of the hive, or is imperfect, owing to the lack of space. Whether this is the fault of the manufacturers or the one who nailed up the hive, I do not know; but a strip about ⅛ inch thick should be nailed at each end of the side of the hive for the end-bars of the first frame to bear against.

◆

WOODEN SCREWS FOR FRAME COMPRESSION.

It has been assumed by some that the wooden thumbscrews are unfit for use in a locality subject to dampness, like that of the States near the great lakes, or, for other reasons, in a dry climate like that of Colorado. There are two troubles that operate against the use of screws in bee-hives. The first is, that, unless proper care is taken for its avoidance, moisture, such as that from rains or the general dampness of early spring, will so swell the screw and the wood surrounding it, that it becomes immovable. This is a very real trouble, and in my first experiments with the Heddon hive it came near making me abandon the whole thing in disgust. But the way out of it is very simple. Before being put into use, the screws should be well boiled in tallow or vaseline. Probably paraffine or beeswax would be good, though I have always used tallow, because cheaper and entirely satisfactory. This boiling in tallow ought to be done by the manufacturers of the screws, and none should be sent out without it, as, unless it is done, there is bound to be more or less trouble and dissatisfaction in their use. It is also a good plan to take a brush or swab and saturate thoroughly with hot tallow or vaseline the threads cut in the hive-side. This will make the wood waterproof to a great extent, and the lubricating material will not work out entirely for years. In boiling the screws, care should be taken not to boil them too long nor get them too hot. In fact, I believe the tallow should never really boil, though when the screws are put into it there will be a lively ebullition, caused be the escape of the air in the wood which is replaced by the tallow. If heated too hot, the wood is carbonized and shrunk to an almost incredible extent. I think a piece of dry well-seasoned hard wood can be shrunk in diameter fully one-fifth in this way. The other trouble in using screws is that they will not follow up a shrinkage like springs. I gave them up in comb supers on that account. Sections are seldom thoroughly seasoned unless they have been kept on hand a year or more; and after the screws have been set up against them, they shrink so as to leave every thing loose. They are often swollen more or less, too, from the water used in wetting the joints so they will not break in folding. This trouble of shrinkage does not bother so much with brood-frames, as they should never be made of any thing but thoroughly seasoned wood. At present I prefer the screws for brood and extracting frames and springs for comb-supers, though a more extended trial of the springs may cause me to change my mind. For reasons I have already given, I think springs are likely to suit the average bee-keeper better.

◆

INTERCHANGEABILITY OF BROOD AND EXTRACTING FRAMES.

Some of those who use the Hoffman frame for extracting, putting seven frames in an eight-frame super, or nine in a ten-frame, defend their course on the ground that it is desirable to have frames that are interchangeable between super and brood-chamber. I could never see any great advantage in this, and for many years there has been practically no interchanging in my apiaries. I do not want brood in my extracting-combs, and there is seldom any reason for putting extracting-combs in the brood-chamber, the only time when it is really desirable being when there is a shortage of honey in the brood-chamber which might be remedied by full extracting-combs. It is so seldom that this condition can not be avoided or overcome just as well in some other way that it is not of much importance. Extracting-combs, especially if old ones, generally require considerable reconstruction before the queen will lay in them, unless she is very anxious for laying room. I aim to have plenty of extracting-combs at all times, and I want to have them at all times available for that purpose. My system of management tends toward an accumulation of brood-combs. This tendency I overcome by sorting out the poorest of them and transferring them into extracting-frames. At least 95 per cent of my extracting-combs are transferred brood-combs; but once they are turned over to the extracting department, they are used for nothing else.

Brood in the extracting-frames is a nuisance. When large quantities of unsealed brood are thrown out with the honey, as is sometimes the case, the quality of the honey may be perceptibly injured, to say nothing of the loss of the brood and the fact that people of nice sensibilities do not like the idea of having worms mixed with their food, even if they are strained out again. A more serious objection is the pollen which is almost always present in brood-combs, and which usually mixes more or less with the honey extracted from them. Some kinds of pollen are much worse than others in this respect, and it is impossible to extract honey from combs containing them without a large admixture of pollen. No honey is improved by having pollen mixed with it, and in some cases the quality is very materially damaged, as the pollen gives the honey a strong and unpleasant flavor besides darkening it somewhat and making it turbid and cloudy.

The late lamented Dr. A. B. Mason made some experiments which he claimed proved that honey extracted some of the color from old brood-combs, and various others have claimed that they could not produce the finest, whitest honey, such as they wanted for exhibition purposes, from combs that had contained brood. While many of us can testify that brood-comb that has been repeatedly extracted from does not color the honey in the least, it is quite probable that the first time honey is extracted from a comb that has contained brood it is both colored and flavored to a slight extent. This is, perhaps, but a small matter; yet I have known people who were prejudiced against extracted honey on account of it, and no doubt there would be more of them if the facts of the case were generally known.

Pickings from Our Neighbors' Fields
By
"Stenog."

I don't know that I can devote my space in this issue to any better advantage than to copy entire Mr. G. W. York's article on advertising and selling honey, read at the St. Louis convention.

When the Secretary, Mr. Brodbeck, who, unfortunately, can not be here, wrote me saying that he wished me to write a paper and to select my own subject I rather declined because I had been on the program so often. However, he insisted on it, and I suggested the subject of "Advertising and Selling Honey," and so I have prepared this paper on that subject.

Advertising, in these latter days, has become almost a science as well as an art. To the business man who hopes to be successful, advertising is a necessity. While in some instances it is rather expensive, it must be indulged in, and that liberally and constantly.

Advertising as applied to honey as a table article has never been attempted in more than an occasional and very limited way. There has been no systematic, businesslike application of modern methods of acquainting the consuming public with the value of honey as a daily food. Its medicinal, health-giving, and health-keeping qualities are also less known than they should be. But just how to initiate a propaganda of advertising that shall interest consumers in honey in a manner mutually helpful is a great question. However I might desire to be the modern Moses to lead you through this wilderness into the Promised Land, I feel I shall fall far short of attaining such coveted honor. But there must always be a beginning, and some one who shall start; and I may as well be the one who attempts to blaze the way, even though I fail to reach the desired goal of success.

In the first place, no plan of advertising honey that would promise results can be inaugurated without the expenditure of cold cash—yes, and lots of it. It takes capital nowadays to do things—to accomplish objects worthy our civilization and people.

In my humble opinion, the National Bee-keepers' Association can undertake and continue an advertising campaign to increase the general demand for honey better than any other organization, firm, or individual. The Association stands for all beedom. What it does should be in the interest of every one who produces honey, and not alone for the benefit of its members. We need to get rid of a whole lot of the selfishness that seems to be on board in some quarters. Only he lives truly, or in the highest sense, who helps to make the pathway easier and brighter for others. No one liveth unto himself, no matter how much he thinks he desires so to do. We are all dependent upon our neighbors, whether we realize it or not. And so in advertising honey it will benefit all producers as well as consumers.

I have believed for many years that the reason why the price of honey is so low is because of the unequal distribution and underconsumption. I know some think that the trouble is overproduction and stagnation of the principal markets. But once let the dear public know—or be assured—that they can get the pure honey every time they buy, and also impress upon them its great value as a food, and there wouldn't be enough honey produced in all the world to supply a quarter of the people, and at a good price.

I know there are a few among us who are advising bee-keepers to "*keep more bees.*" I suppose one idea is to keep more bees, to produce more honey, so as to buy more bees and bee-supplies, and then keep more bees to produce more honey, etc. My theory is, to advertise the uses of honey so that what is *now* produced will bring a higher price. Then if a bee-keeper decides to keep more bees to produce more honey he will also get a great deal more money for his crop, and so be better paid for his labor, and receive better returns for the capital invested. I doubt not more rapid progress will be made if the advertising line be followed for a while, than to attempt to keep more bees so as to increase the flood of honey to be sold at a bargain-counter price. Why, honey should bring at least 50 per cent more per pound in the markets to-day than it does. But the *demand* must be increased in some way. My "some way" is by advertising—letting the people know the truth about honey.

Again, the untrue statement that comb honey is manufactured—which was started in 1881—still goes "marching on," and is yet dealing its dreadful death-blows to the honey business. I believe the only way ever to "nail that lie" is for our National Bee-keepers' Association to *advertise*—give the people facts about honey for awhile. Very soon, I am sure, the newspapers would "catch on" and the good work started through such advertising would be kept going, so that in a few years the evil effects of that misrepresentation about comb honey would be counteracted; and when that happy day is here, there will not be enough honey produced to supply a tenth part of the demand, and at good paying prices to the bee-keeper.

Further, I would have our National Association urge bee-keepers everywhere to endeavor to get their local newspapers to publish information about honey. The Association could prepare such matter, and begin by getting its members to use their influence to have it published as widely as possible. Then the bee-papers would undoubtedly do all they could to have their subscribers do likewise. With such united effort, who doubts that a great demand would soon be created for honey—a demand that would take every pound of honey produced, and at a good price?

The satisfactory selling of honey that will naturally follow the proper advertising of the same, presupposes a high-grade article and suitable retail packages. Of course, comb honey will ever be retailed by the single comb. Extracted honey, whether in liquid or granulated form, must be in convenient-sized packages. And all, whether comb or extracted, should bear the brand or stamp of absolute purity, and that in such a manner as to imply an undoubted guarantee of the same. Once get it drilled into the heads of consumers that there is no such thing as machine-made comb honey, and that the purity of the extracted article can be relied upon implicitly—then there need be no further worry as to profitable prices, or as to finding an outlet for your crops of honey, no matter how large in quantity they may be.

It is possible that a final and satisfactory solution of the advertising of honey by the National Association may include an Association brand. But I imagine a snag will be struck here that, if not properly safeguarded, may cause more trouble than benefit. I am not clear as to the Association-brand business. It might be a good thing. I don't know. Perhaps a careful, competent committee to pass upon granting permits after examination of the credentials of an applicant would be the best way to do it. But as there is no uniformity of grading on the part of producers, and no very universal agreement as to taste or honey-flavors, this whole matter of an Association brand becomes a very complex one. Of course, the assembled wisdom of this body may evolve something tangible and adequate out of the chaotic condition that exists. If so, we can swing our hats high with huzzas of victory. But let us make haste slowly in this matter, lest our latter end be worse than the first.

In conclusion, I want to urge a thorough discussion of the advertising of honey. It is worthy the best brain in our ranks. It is also entitled to a fair trial, I think, provided the Association's funds will warrant it. But I have no doubt many who deal in honey would be glad to co-operate, and surely every commercial honey-dealer in the land will be only too eager to lend a hand—and also pay a few dollars annually—in order to get the honey-advertising campaign properly launched; for its beneficial results will be to all who have, for marketing, either few or many pounds of the sweet product of the bees.

Editorial
By E. R. Root

THE New York bee institutes will be reported in our next issue.

MR. O. L. HERSHISER has written an article showing that his bottom-board is not affected by propolis attachments as suggested in the editor's footnote in our last issue. It will appear in our Feb. 15th number.

PRESERVATIVES NOT ALLOWED FOR PREVENTING GRANULATION.

DEALERS over the country should understand that putting small quantities of preservatives such as salicylic or phosphoric acid or even glycerine in honey to keep it from candying will, in all probability, cause it to be classed by chemists and food commissioners as adulterated, and subject the seller of such goods to a fine. One such case occurred this summer, where a dealer put a small quantity of phosphoric acid in honey—not to adulterate it, he said, but to keep it in a liquid condition. Whether it would or not I do not know, but the pure-food commissioner got hold of a sample of this, had it analyzed, and the dealer was notified to discontinue the sale of all such honey, which he did. If preservatives were permitted for the purpose of preventing granulation this might open the door wide to fraud; and it is well, perhaps, that the commissioners and chemists should declare that all such honeys be classed as adulterated.

MANUFACTURED (?) COMB HONEY WANTED.

A SHORT time ago Mr. Walter S. Pouder, of Indianapolis, received a letter which he thought was rather a joke on him. It was nothing more nor less than an inquiry for prices on machine-manufactured comb honey. Mr. Pouder referred this to us; and my reply, with the address and all, is given as per below:

> *Mr. C. A. Cook, Fairmount, Ind.—Dear Sir:*—Your letter of Oct. 20, to Walter S. Pouder, making inquiry for artificial comb honey, supposing him to be a manufacturer, has been referred to us at Medina, for Mr. Pouder is one of our agents who sells our bee-keepers' supplies. You have been misinformed as to the existence of this product on the market—namely, machine-made artificial comb honey. There is no such article for sale, never has been, and never will be. We enclose you one of our thousand-dollar reward cards that we have had out for over fifteen years. We have sent it broadcast over the country, and the exact language of it has been copied in a number of the large daily papers, but never have we had any one who would presume to take up with the terms of the offer. Likewise, the National Bee-keepers' Association, an organization of 2000 members, has offered a thousand dollars for proof of the existence of machine-made comb honey, which offer has also been published widely without a taker. The *Ladies' Home Journal* recently published an item to the effect that there might be such manufactured comb honey. Several other magazines gave currency to similar stories; but every one of them, with scarcely an exception, has published a retraction when the facts were laid before them.
>
> We can furnish you regular bee-comb honey in any quantity. If you make known your exact requirements we shall be glad to give you prices and particulars.
>
> Yours truly,
> THE A. I. ROOT CO.,
> *per* E. R. ROOT.

Mr. Pouder thought it was hardly worth noticing; but I should like to get hold of all such inquirers, and give them a good solid dose of facts.

OUTDOOR FEEDING; WHEN IT SHOULD AND SHOULD NOT BE PRACTICED.

IN this issue, page 132, Mr. Doolittle mentions some of the disadvantages of outdoor feeding. Taking it all in all, he advises the beginner to let it alone. In this I entirely agree with him. I also agree with him that it should not be practiced in the spring when the weather is a little cool. As to some of the other difficulties, I can only say that, only a year or so ago, I would have written myself just as Mr. Doolittle does. My first experience in outdoor feeding was decidedly unfavorable; but later experience on a more extended scale showed me that the difficulties were not nearly as great as I had expected. For the queen-breeder I consider it the greatest boon that has yet been offered; for by careful management the bee-keeper can bring about artificial conditions very much like a natural honey-flow, when cell cups will be accepted, built out, queens introduced and mated; and as to robbing and getting weak colonies or nuclei robbed out, there is not a particle of need of it. None of our bees stood the outdoor feeding better than those in our baby nuclei, and we had a lot of them. It is true, as Mr. Doolittle says, some colonies will get more than they need. No harm in that, for the colonies that have too much can spare surplus combs to those that do not have enough. It is simply a matter of equalizing stores on the part of the bee-keeper. As Mr. Doolittle is a queen-breeder himself, I strongly urge him, if there are not other bees in his immediate locality, to try the plan out again, being careful to observe all the hints that have been given by the different writers on the subject within the last six months.

THE MINNESOTA BEE-KEEPERS' CONVENTION.

A MEETING of the State Bee-keepers' Association was held at Minneapolis on Thursday and Friday, Dec. 7 and 8, 1904. I had intended to get in a mention before this; but the reports of other conventions of a prior date crowded it out until now. In the mean time I wrote to the Secretary for a report of the meeting, but have not heard from her at the present time.

The convention was called to order by Dr. E. K. Jacques, of Robbinsdale, who proved to be an excellent presiding officer, and just the man for the place, in view of the fact that there was an "irrepressible conflict" which was bound to come to a head at some one of the sessions. The question at issue was whether the State Association, at the previous meeting, indorsed or fathered the movement that had already been put into operation along the lines of co-operation. One side took the view that the Association was a party to the movement, had appointed the committee, and was, therefore, a co-operative body to handle honey and sell supplies. President Jacques held that the committee on co-operation had no organic connection with the State Bee-keepers' Association, that he did not so understand it at the time the committee was named. This view was supported by the minutes of the Secretary, Mrs. W. S. Wingate, of Minneapolis. A small but active minority insisted that the committee *was* appointed by the chair for the Association. The discussion waxed rather warm, when finally, on a test vote, the Secretary's minutes were sustained. The minority was still strenuous in urging the State Association to stand for co-operation. After a long discussion, by an almost unanimous vote it was decided that the organization could not, as incorporated, have any thing to do with a commercial enterprise. At the close, Dr. Jacques made a most conciliatory speech that resulted in harmony and good feeling all around, although, like Banquo's ghost, the subject of co-operation, I should judge, is one that will not down, but probably come up in some form at a future meeting.

The Association took strong grounds in favor of foul-brood legislation for Minnesota. It was shown there was an urgent need of such a law. An excellent committee was appointed, and the probabilities are that a strong effort will be made to get a law through at the present session of the General Assembly of Minnesota. Editors York and Root both volunteered to help along the movement in any way that seemed feasible.

At the evening session, on Wednesday, there was some moving-picture stereopticon work by Prof. F. L. Washburn, State Entomologist, and E. R. Root, of Medina. Prof. Washburn showed some beautiful colored slides, not only relating to bee-keeping but to his special department, entomology.

On the same evening, Mr. Wm. Russell, of Minnehaha Park, a native-born Scotchman, gave a bagpipe selection. It was encored most vigorously. He was dressed in his native costume, and rendered his music in the characteristic fashion of the native Highlanders. At the close of this, little Miss Jessie Baker, a girl nine or ten years old, dressed in Scotch costume, gave a Scotch dance while her father played the bagpipe. So well did she do her work that she was repeatedly called back by the audience.

Quite a number of interesting papers were read at this meeting; but as I was able to be present at only a few of the sessions I am not able to present them here, but may do so later on.

LIVE BEES ON THE SCREEN; MOVING-PICTURE WORK.

It is not often that I give any comment on my own convention work in these columns; but our readers may be interested in seeing what Bros. Hutchinson and York have to say about the moving-picture work at one or two of the late conventions, especially as there are ideas there that may be helpful to other exhibitors and bee-keepers who desire to illustrate bee-keeping in its various phases before the public schools. Well, here is what is said. We will first quote from Mr. Hutchinson, of the *Review:*

> A delightful entertainment was furnished by E. R. Root at the meeting of the Chicago Northwestern Bee-keepers' Association. It was a series of stereopticon views, together with moving pictures showing the swarming and hiving of bees, as well as some of the manipulations of handling hives. When the operator jerked back his hand and rubbed the back of it on his pants leg there was a decidedly audible snicker from the audience. At the close of the entertainment, live bees, placed between two glass slides, were placed in the lantern In catching the bees and putting them between the glass slides, some of the bees lost their stings, to the sorrow of the operator. The sting remained attached to one bee (not being pulled entirely loose), and the way the bees chased this one, and tried to remove the sting, brought down the house. The pictures of the bees on the screen were about two feet in length.

This is what Mr. York, of the *American Bee Journal*, has to say:

> Mr. Ernest R. Root is a versatile man. He can do many different things, and do them all well. His latest attempt is the management of a kinetoscope, by which moving pictures are thrown on the screen—pictures in which every motion is shown just as if the very pictured thing itself were in actual operation before your eyes.
>
> For instance, the hiving of bees, looking for the queen in a colony, and, in fact, every motion made in the manipulation of a hive and colony, or the hiving of a swarm, is presented in perfect life-likeness. This was the very interesting feature of the Wednesday-evening session of the recent Chicago-Northwestern convention. The hall was crowded, and the whole performance was greatly enjoyed by all.
>
> This was the first appearance of moving bee-pictures in the United States. They were of English manufacture, and so were of English hives and English methods and manipulations. The usual quick action of the apiarian operator as the result of a bee-sting was fully appreciated by the duly iniatiated observers. As an experiment, live bees were caged between a double glass and also reflected on the screen. The way the shadows of these bees scurried around was certainly surprising as well as amusing.
>
> In addition to the kinetoscopic exhibition, Mr. Root also gave a stereoscopic display, showing various pictures of the factory and apiary of The A. I. Root Co., besides portraits of many prominent bee-folks, apiaries, parts of the bee—such as the tongue, eyes, sting, etc., and many other pictures "too numerous to mention."
>
> Mr. Root is a great entertainer with his stationary-and-moving-picture exhibition. He has given the same show both at the Cincinnati and Minneapolis conventions since the Chicago-Northwestern meeting. Don't fail to witness it if you can possibly attend any convention or other place where it may be given.

Mr. W. F. Marks, of Clifton Springs, N. Y., says he suggested to me a number of years ago the possibility of showing live bees on a screen in the manner described above; but I had forgotten all about it, in the same way that I sometimes forget other good ideas given me by my friends. In the present case, at least, it was the Rev. D. E. Lyon, of Matawan, N. J., who put me on track of this method of showing living bees on the screen. Where Mr. Lyon may have gotten the idea I do not know; but I am told that this principle of showing insects in general has been known to practical stereopticon-operators a long time. It has not, to my knowledge, been employed to show live bees in this country until lately. The great difficulty is to get the bees to *perform* properly. At Chicago they showed off as if they *knew* they were on exhibition. It seems Mr. France, in putting the live bees into the glass cage, was stung by several of the bees. Some of the stings were lost entirely, and others were only partially torn loose from the bees. As noted by Mr. Hutchinson, the other bees seemed to be very much disturbed by the fact that their mates had lost their stings, and proceeded to "fix them up" by pulling away the torn tissue protruding from the end of the abdomen of the bees. One bee in particular must have gotten a dose of the bee-sting poison, for it immediately began to rub its eyes and nose with its fore legs, and seemed to be in great distress. Its peculiar antics on the screen were comical in the extreme.

It is the intention of the Root Co. to show not only live bees in the manner described, but actual moving pictures by the latest model of the Edison kinetoscope at other places. A series of exhibitions has just closed at the bee institutes in York State, H. H. Root doing the operating, and Mr. N. E. France the talking. So far as I can learn, these took well. Another series of exhibitions will be given in the Eastern States by Rev. D. E. Lyon, before alluded to. These will all be free, the Root Co. being satisfied to take its chances on returns through the distribution of printed matter which is given out at the close of each lecture. Public schools, farmers' institutes, and bee conventions, when the distance is not too great, may secure the entertainment by writing Mr. Lyon. Many dates have already been booked, and in some cases we may not be able to give the exhibition, because there is only a limited number of dates available.

WALTER S. POUDER, THE INVENTOR, BEE-KEEPER, AND SUPPLY-DEALER.

Mr. Pouder's name is one that has come to be a household word in almost every bee-keeper's family in the land. He has sold bee-keepers' supplies at Indianapolis since 1889; but his experience with bees goes back to 1877. In 1884 he brought out a form of bee-escape on the flood-gate principle, that came very near being a perfect device; and even to-day, were it not for a little difficulty in the matter of propolis interfering in its operation, it would be a close competitor and a strong rival of the Porter. But it shows that Mr. Pouder, as long ago as 1884, saw the need of a bee-escape. If the times had been ripe for Mr. Pouder's invention then, as they were later on for the Porter, it probably would have had a large sale.

Again, we find him considerably ahead of the times when he brought out his open-corner section, which is really a close cousin to what is called the plain section. This he brought out in 1888. Strange we did not appreciate and understand its value away back in those early days. I am of the opinion he could have had it patented, and it would have had a large sale if it had been properly pushed.

Later on, Mr. Pouder developed one of the most successful methods of bottling honey that was ever devised. I refer to the plan which we have adopted, of pouring cold honey into the bottles from the filling-tank, then heating the same in a vat of hot water, the water reaching up to within one inch of the top of the jar. When the proper temperature is reached, the bottles are taken out and sealed. A feature of his plan that is valuable is that it enables one to reliquefy the honey in these same bottles. Indeed, we even go further and heat the bottles in a bath of hot air, so to speak, without using any water at all. The honey can be reliquefied without even disturbing the labels or corks. I believe Mr. Pouder is using practically the same method.

In 1882 he came to work for the Root Co., taking a clerical position in our office. Later on he struck out for himself, and the next thing we knew he was selling bee-keepers' supplies in Indianapolis. He is now located in a new store, large and well lighted, where he is prepared to serve his patrons with honey in all its various forms, and bee-supplies. But the supply business is liable to be quite dull in mid-winter, and then there is a rush in warm weather. To take up his time in the off part of the year, Mr. Pouder puts up a superfine grade of peanut butter. The members of the Root Co. have all sampled the goods, and consider them to be the very finest. If any of our subscribers wish to get a really fine gilt-edged article they should write to our friend Mr. Pouder.

As a dealer in supplies, I doubt if there is another man in all the country who has given more prompt service or more general satisfaction to his customers. I will go further, and say that, in all the years that Mr. Pouder has been identified with the trade, he has never, so far as I know, had a dissatisfied customer, and that is saying a good deal when we consider that some people are very hard to please.

The little half-tone plate is a very good likeness; and when I learned that our friend was living in "single blessedness" I was much surprised. Good-looking, honest, and an excellent business man, he ought to follow the example of our friend Mr. Wilson, whose picture we showed on page 72 of our preceding issue. Mr. Pouder is hereby authorized to secure the pictures, and we will pay the bill. Perhaps I had better be careful. A certain young lady of very prepossessing appearance whose picture I showed in Gleanings—well, I will not say when—received several direct proposals of marriage. Perhaps—perhaps—well, perhaps I had better not tell the rest. The young lady's hand had already been taken, and it is possible that friend Pouder's may be also, for I conveyed to him, when I last visited him, A. I. R.'s advice.

GENERAL
CORRESPONDENCE.

INTRODUCING.

Scent of Bees; does it Affect the Introduction of Queens?

BY ARTHUR C. MILLER.

In GLEANINGS for Sept. 15, p. 886, I find an editorial headed "Introducing with the old queen in the hive; scent of bees." The matter which follows this heading tells us of having the new queen caged in the hive, and leaving "the old queen to lay right along up to within a *few hours* of the time when the *new queen is to be released*" (my italics). Why waste those *hours?* The success of this method is attributed to the new queen having acquired the scent of the colony. It seems to me that it is time bee-keepers knew something tangible about this matter of scent if so important and so frequent an operation as queen-introduction depends upon it.

Is scent a personal body emanation, or is it acquired by external contamination? Can a bee or a queen in a few hours or a few days acquire from the atmosphere an odor sufficient to overcome her individual body odor? If scent plays so important a part in bee-life, why is a super full of bees readily accepted by a colony to which it is transferred? and why are these same transferred bees permitted to go with stores from their new home back to their old home to be welcomed there, and to keep up this travel to and fro for an indefinite period? And they do just that thing. Mr. F. B. Simpson first called my attention to this, and I have since proved it many times. If scent is the factor of acceptance or rejection, why are bees permitted to enter freely the hives of transposed colonies? If scent governs, why can drones enter anywhere unchallenged?

In regard to drone and queen odors, sexual odors are one thing while colony odors are another. In the case of a queen it is currently assumed that she has a home odor, and that it is necessary to remove, hive, or submerge that and substitute therefor another odor (that of the receiving colony before releasing the queen, on the ground that otherwise the receiving bees will detect the alien by her home odor. The point that the editor makes is, that it is *alien odor* to which the bees are antagonistic. Yet a drone, just as much saturated with home odor, is, under most conditions, received without question by any colony. Also under several conditions worker bees, full or empty, and presumably thoroughly soaked with their home odor, go freely in and out of alien colonies, and this often, also, in times of scarcity, when, as a rule, all callers are challenged and closely scrutinized.

From experiments and practice extending over sixteen years on this very matter of scent in queen-introduction, I am satisfied that it plays but a very indirect part.

In 1887 Mr. Simmins' book appeared, and it contained his method of "direct introduction" of queens. As described by him the queen was to be kept alone, warm and without food, for thirty minutes, when she was to be run in at the top of the hive of a colony (which *knew* of its queenlessness), and preceded and followed by a puff of smoke. This operation was, preferably, to be done near nightfall. Further, he advised using a fresh receptacle for each queen, or thoroughly scalding the other before using it again.

This method, conducted as described, is good, but I have found that several factors can be ignored and yet uniformly successful results be achieved. I have found that I can use the same cage for an indefinite period, and cage a new queen immediately on releasing another; that I can run in the queens at any hour of the day; that I can introduce the new queen *immediately* on removing the old one; and if the new queen is taken from her work in a nearby hive I shall find her laying in her new home inside of half an hour. I have found this method equally applicable to queens from the mails as to those from my own hives; also in ten instances this last spring I successfully introduced virgins received by mail, and this to colonies some of which had not been dequeened an hour. *Where was the scent factor?*

For many years I have been thus introducing fertile queens; and, except in cases where I have varied conditions for the purpose of study, I have been uniformly successful. To just a very small extent I can see that scent may have some bearing, in that it possibly acquaints the queen of the fact that she is in a strange place, and so cause fear unless that is overborne by hunger. Most bee-keepers are familiar with the ease with which a queen in the full exercise of her powers may be transferred from one colony to another. If, however, such a queen is frightened, trouble is sure to ensue, scent or no scent. Here is the description of a very pretty example of the effects of timidity and subsequent fasting:

To a colony queenless for a few days I tried to give a laying queen from the next colony by just picking her up and letting her run in at the top of the new home. It frightened her, and she started on the run across the tops of the frames, and immediately the bees gave chase and balled her. I rescued and caged her, and let her fast for half an hour, returned to the same hive, removed the cover, and watched her pass in and beg for food. There was no trouble at all then, and she was in full swing the next day. This was an exceptionally timid queen, one that would always run and hide when her hive was opened. I have had similar cases. Such queens are often balled and killed by their own bees, while one of a more phlegmatic temperament is left undisturbed, no matter how much we may overhaul her colony.

With this free-and-easy way of introduction there are a few factors besides fasting which I generally observe, though they are not always necessary. When introducing a queen to a colony *just* dequeened I usually give them several vigorous puffs of smoke from above and below; and as soon as it has blown aside I let the new queen run in. If the new queen has been caged for several days so she has stopped egg-production, or if she is timid, I do not ordinarily disturb the colony for two or three days after her introduction; but if she is just from one of my own hives I can look her up within an hour or less if I so wish. If it is at a season of scarcity of nectar, or there has been any robbing, in introducing I use rather more smoke "to take the fight out of the bees." I use this method on colonies queenless for any period from one minute to the stage of acute laying workers.

I have been studying these latter curiosities a good deal, and have had many opportunities to test queen-introduction to them, and so far have met with no failures by the direct system. Can this be said of any caging method?

It is a reasonable *supposition* that each colony has its individual odor, but we have no positive proof of it. Because a bee is challenged in trying to enter a strange hive, it is no proof it is on account of odor. It is a fair presumption that such is the cause, but it is not proof. The only act approaching proof of body scent is that of bees searching over objects with which queens have recently been in contact. But this is sex odor. We can do many things which, if "home odor" existed, or if existing was of vital import, we should not be able to do.

Basing practice on theories which ignore odor, I can do the same things which the editor does by other methods. If current belief is right I should fail often, but I don't; while, on the contrary, methods based on the odor theory are far from being uniformly successful. Further, if odor is the controlling factor, why will confined bees receive any queen without previous caging? If we stop to analyze our reasons for following the caging systems (and many others for that matter) they will be found to be based on "follow the leader." It was advised years ago, and has been passed down the line ever since.

As I have studied bee-books ancient and modern I have been astonished at the many beliefs and practices which have come to us from early times solely because each author has, without question, copied from a previous one.

Our methods of education lead us to accept as authoritative whatever we read in books, and it is hard to break from this habit. One of the first things taught in many advanced schools of to-day is to doubt the text-books until the student has proved the statements for himself. This attitude is not the one common to beedom; but until it is we must expect to continue to advance in circles. It is to try to break such a circle that I have challenged the editor's position on caging. It is his position as representative of bee-keepers at large.

If my position in the matter of odor is wrong I shall be glad to have it shown me; but I shall need more convincing proof than any that has yet been offered. Let us have exact facts, not beliefs.

Providence, R. I., Oct. 24.

[I will explain to our readers that what I said in reference to the matter of scent in its relation to the general subject of queen introduction was based largely on data and information received from Dr. E. F. Phillips, of the University of Pennsylvania, from Geo. W. Phillips, now a student at Denison University, this State, and E. T. Abbott, of St. Joseph, Mo. Dr. E. F. Phillips has spent two summers with us, making the scientific side of bees his special study. Mr. G. W. Phillips, no relative of the former, was born in Jamaica, and has raised many thousands of queens, both in Jamaica and here. He has large apiaries of his own in Jamaica, and while in Medina had charge of the Root Co.'s queen-rearing business. The experience of both the Phillips is confirmed by my own experience in several seasons in queen-rearing a few years ago. I can only believe that, if our friend Mr. Miller had had a long experience in rearing queens in a *large way*, he would probably modify several of his conclusions or otherwise interpret the phenomenon mentioned. As Mr. G. W. Phillips has gone over this scent question thoroughly for several years, I asked him to reply in detail, which he has done.—Ed.]

WHY SCENT IS AN IMPORTANT FACTOR IN QUEEN-INTRODUCTION.

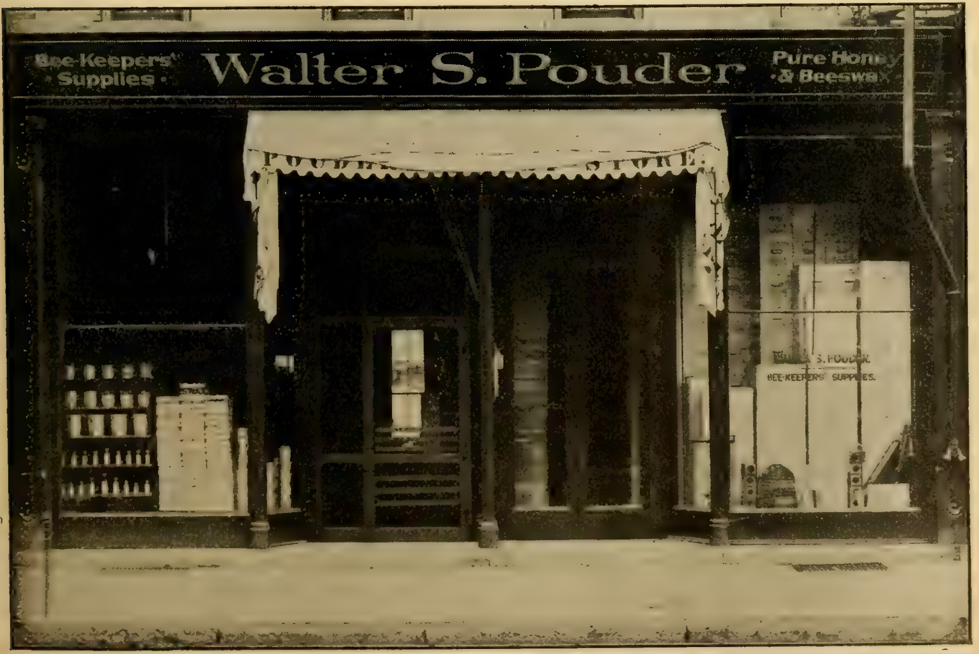
No one need be afraid of truth, even if it conflicts with orthodox beliefs. Mr. Miller is correct in a few of his assertions. But while I admit some of his statements to be facts, I can not agree with the conclusions he endeavors to deduce from them.

Mr. Miller seems to take it for granted that we believe scent to be the only factor worth consideration in introducing queens. Oh, no! There are many other conditions that play an active part in this matter, and, like him, we know that queens may be accepted or rejected, "smell or no smell." So, we are not surprised that, where every thing is exactly right, a queen may be allowed to crawl over to the combs of some other colony not long queenless; or that bees confined for less than five hours (not much after that time), and while still in a state of excitement, may accept a strange queen; or that bees sufficiently deluged with smoke to "take the fight out of them" should make no resistance when a strange mother is given—no more so, indeed, than we are to understand that a desperately queenless colony will often accept any thing in the shape of a queen, however given, and irrespective of her actions when introduced. The fact is, other elements exist in a sufficient degree to counterbalance the smell element.

But scent does exist; and the part it plays in apiculture has not been exaggerated. Mr. Miller has cited a few exceptions to prove his theory; but what is he going to do with the general rules? Drones can not be taken into account, for we know that, during swarming season, the bees have a certain affinity for them; and even after, particular colonies, such as supersedure and queenless colonies, will readily accept them, while their own colonies will not tolerate them. If supers of honey, with the bees they contain, may be safely transferred from one hive to another, we should not forget that most of the super bees would be young, and also full of honey—two conditions that tend greatly to reduce the danger of a fight. (But would there always be perfect peace?) Under "several conditions" worker bees will be allowed to unite with strange colonies. Yes, but it is the existence of these peculiar conditions that renders the amicable union possible; and without them the rule holds and the bees are killed. As for saying that bees will be allowed to go in and out of a normal colony unchallenged, and keep on removing stores contained therein for an "indefinite period," I beg to suggest that Mr. Miller try the experiment again.

Place a queen in her shipping-cage and supply attendants from her own colony. Every thing goes smoothly. Take the attendants from some other hive, and you must be careful to have a smoker handy or your queen may be stung to death. Why the difference? Go to two colonies and interchange queens. What happens? Both are killed. Excitement, says Mr. Miller. Take the queen from colony No. 1 by her wings; clip her and let her fall into No. 2. She is balled at once. Excitement, says Mr. Miller. All right. Do the same thing, and let her fall into No. 1. She is just as much excited, but is kindly treated. Why the difference? Give each of the above-mentioned colonies a frame with adhering bees from the other. Use no smoke, but do the work so gently that the bees are not aware of the exchange. Look at the entrances fifteen minutes later, and see the result. If excitement has been the cause of

WALTER S. POUDER.



SUPPLY-HOUSE OF WALTER S. POUDER, INDIANAPOLIS, IND. SEE EDITORIAL.

this fight, why has there been excitement? Ought not the bees to have been just as much excited had they been removed and replaced in their own hive? They were roused to hostility because they knew they were among aliens. Certainly; but how did they happen to discover they were among aliens? If not by smell, is Mr. Miller prepared to tell us that it was by sight? And if not by sight, will he tell us by which of the other senses the bees recognized their neighbors?

The scent of a queen is certainly affected by foreign odors. I remember once removing a young queen from a nucleus, and introducing her by the direct method to a queenless colony. She remained on the comb for a little while, and then the bees prepared to ball her. I recaged her, and let her crawl again to the combs of the former nucleus; but before I could rescue her she was stung to death. Let Mr. Miller try this experiment some day: Take a queen from her hive and cage her in another colony for an hour. After that, let her loose on her own combs, as he would had she been caged in the former hive for that space of time. I advise him, however, not to use a valuable queen for the experiment. Indeed, the advice has been well given, not even to let the operator's fingers touch a queen's body when clipping her.

But the plan of caging that Mr. Miller tries to combat in his article is in itself a proof of the important part scent plays in queen-introduction. The fact that queens caged for a sufficiently long time to acquire thoroughly the scent of a colony, will almost invariably be accepted, while others, not so treated, will just as frequently be killed, is certainly strong evidence along this line. I have used the direct-introduction plan as outlined by Mr. Miller (it is almost the same as the one mentioned by Mr. Langstroth in "The Honey-bee"), introducing some scores of queens by it on a certain occasion in Jamaica. But, although it worked fairly well with laying queens, yet it was not quite as good as the candy plan as then practiced, and was far inferior to our present method. In one case the queen enters. a stranger, and her acceptance depends upon her good behavior, and upon how much of the "fight" has been taken out of the bees by smoke; while in the other she has already become a member of the colony.

Mr. Miller has only to test the caging method to find out that it is the safest by which queens can be given to fertile-worker colonies. Cage a queen in such a colony for a few days; she acquires the scent and is accepted before she is released. Last season we kept a few of these colonies for Dr. Phillips to experiment with. They were so alive with laying workers that he gathered quite a number taken in the act of laying. As soon as he was through with his experiments we caged and introduced virgins, which were duly accepted and fertilized. Mr. Miller ought to try a plan before he condemns it.

Dr. Phillips is a zoologist, and, from a scientific standpoint, one of the best authorities of bees in this country. Last summer, while introducing a lot of newly hatched virgins to baby nuclei, I was about to take one in my fingers, when he called to me:

"No, George, don't handle them. Let them run in direct from the nurseries."

He was right, for even the miniature nuclei seemed to resent the foreign odor thus transmitted.

With the abundant practical evidences that exist, and with the support of men of Dr. Phillips' caliber, I think the orthodox belief is still tenable.

I may remark, in conclusion, that men who make a business of raising queens must have something tangible to work with. Certain peculiar incidents may occur at times which seem to upset established rules, and induce us to believe that conclusions which have been drawn after much patient labor and careful thought are without foundation. But let us learn to distinguish between the exceptions and the rule. The present methods of queen - introduction, whether practiced as the editor mentioned in the article referred to or not, are based largely upon the sense of smell, and they give satisfaction. Even the plan which Mr. Miller advocates and projects in proof of his theory owes its success, perhaps more largely than he recognizes, to the fact that the odor of queen and bees is affected by the smoke (usually tobacco smoke) which forms so important a part in this particular method of introduction. If, however, ninety-nine per cent of us are following an erroneous theory, we are open to conviction; but the burden of proof lies with Mr. Miller.

GEO. W. PHILLIPS.

Denison Univ., Granville, O.

THE WINGS OF THE BEE.

III.—The Development of the Wing.

BY E. F. PHILLIPS, PH.D.

The two first articles of this series dealt with the adult wings of the bee and the abnormalities which have been observed in the venation We will now take up briefly the development of the wings during the growth of the insect from the egg. Possibly a more natural method of arrangement would be to study the development first; but this is less desirable because of the fact that a knowledge of the final result is necessary to appreciate fully the things found in the earlier stages.

The first indication of wings to be found in the developing bee is the presence of folds in the body-covering on the upper side of the meso and meta thoracic segments of a young larva. On account of its habits of life the larva needs neither wings nor legs; but both of these begin to develop during this stage and in a very similar manner. A vesicle, or pouch, of the body-covering is formed, which is to be a wing; but since the presence of four such protuberances would hinder the larva they are pushed into the body like the finger of a glove turned in until the tip of the finger is just below the surface of the glove. At the same time that these infolded pouches are formed from the body-wall, the rudiments of the future tracheæ of the wing can be seen. These infolded wings increase in size during the larval stage; but since they do not extend beyond the body-wall they become folded.

During the pupa stage when the young developing bee ceases to take food, and is sealed up by the workers, the wings gradually unfold outside of their pouches, due to increased blood-pressure, and go through various changes until they reach the adult condition. From the method of formation it will be seen that each wing consists of two membranes. This outfolded pouch is, in the early stage, filled with the blood, and tracheæ grow out into it. Thickenings appear on the membranes, which ultimately become the veins or nervures of the adult wing. At a later stage the layers corresponding to the future upper and lower surfaces of the wings become closely applied, and fuse, except along those lines where tracheæ are present; here also the blood circulates, and these lines form part of the future veins.

In many insect wings each vein marks the location of a branch of the tracheæ in the developing wing, but this is not true for hymenoptera. In the pupal wing of the bee there are three tracheal branches coming from the thorax along the radius, cubital, and anal veins (see Art. I. for the location of these veins). The first and third of these follow the veins regularly; but the one beginning in the cubital vein passes along the medio-cubital cross-vein and there divides, the anterior branch following the vein radius-one, and the posterior being found on the outer portion of the medial vein. This is of importance since it indicates that, in the hymenoptera, changes have taken place in the development which make it hard to homologize the veins of the insects of this group with other insect orders.

The entire surface of the wings is covered by very short hairs with an expanded base, while near the bases the hairs are comparatively long. The cuticle of the wing in the pupa stage was, of course, composed of living cells; but as the insect reaches its adult condition these dry up and nothing remains but the cell membranes. Careful microscopic examination will reveal some of the boundaries of these cells although they have ceased to be living units.

In the development of the wing the size of the cell in which the pupa is placed is a very important factor in determining the shape of the adult wing. If the cell is small the wing can not become wide; and to give the proper amount of wing surface it becomes relatively longer. If, on the other hand, the cell is large, *e. g.* a drone-cell, the wing becomes wider and relatively shorter. This was shown to be true by a long series of measurements of the veins *M* and *m*. The vein *m* is about twice as long as *M*, but the ratio varies all the way from 1:1.7 to 1:2.6. For bees in large cells and with wide wings the ratio was less than for bees from small cells and with long wings, and the relative widths and lengths are in inverse proportion to each other within certain limits.

Philadelphia, Pa.

THE IMPORTANCE OF HAVING QUEENS REARED FROM THE BEST OF STOCK.

Improving the Quality of your Bees; that Two-hundred-dollar Root Queen.

BY E. W. ALEXANDER.

How many times during the last few years the different writers for our bee journals have told us the necessity of keeping young prolific queens in all our hives if we expect to get good returns! But how seldom have they told us of the importance of having those queens reared from the best honey-gathering strains of Italians that could possibly be found! This I consider one of the most essential things connected with successful bee-keeping; and as I have had some letters of inquiry since the Nov. 1st issue of GLEANINGS, in regard to the kind of bees I keep, the particular strain of Italians, and what I consider the principal requirements in order to secure a large surplus of honey, and several other questions of less importance, I will try to answer some of them through the medium of GLEANINGS.

First I will say that, of all the thousands of Italian queens that I have bought and reared since their first importation to this country, I have *never* sold a queen in my life, and I never expect to. We buy and rear only what queens we want for our own use; so hereafter, when I speak of the strain of bees we keep, or the strains of others, don't for one minute think that I am in any way interested in selling queens.

We now have what might be called a combination strain of bees, as they have been bred for nearly twenty years from the best honey-gathering strains of Italian bees that money could buy; and during this time I have thrown out every queen whose bees were poor honey-gatherers; cross or vicious in handling, addicted to excessive swarming, or were restless in winter quarters, wasting themselves away and coming out weak in the spring. All such colonies have been marked, and their queens superseded the following summer. In this way we have acquired as fine a strain of bees as there is in the United States.

Prof. Frank Benton, of Washington, D. C., spent a day with us last summer; and after carefully looking over our apiary he said that, in all his travels through the United States, including Southern California, he had never seen so large an apiary nor one which had a finer strain of Italian bees. I speak of this simply to let the readers of GLEANINGS know what can be accomplished by thorough, judicious breeding. To this special care and attention in producing this strain of bees, along with careful management, I attribute our success in getting large yields of surplus honey.

You all know that, a few years ago, The A. I. Root Co. told us that they had found in one of their apiaries a queen whose bees gathered far more honey than any other colony, and that they saw such a decided difference in favor of this queen and her bees that they valued her at $200 for breeding purposes. Now, as I was fortunate enough to get 100 granddaughters of this $200 queen from L. H. Robey, and have had those 100 queens in our apiary for the last three seasons, I am sure I know something of their real value. First, we have had very few natural swarms from those queens —I don't think over 20 from the 100 colonies during the three summers; and when extracting we have always had very heavy combs from those bees, usually of nice light honey, even when our buckwheat was in full bloom. I am sure, therefore, that the blood we now have in our apiary, from that $200 red-clover queen, has given us several tons of additional surplus honey. I have also had some fine honey-gathering strains from other parties.

I wish now to speak of some queens I bought 16 years ago. I got twelve $1.00 queens from one of the principal queen-breeders at that time, which I introduced into good colonies about June 1. Although it was a good season I not only got no surplus from any of them, but had to give five of the twelve hives some heavy combs of honey from other colonies in order to carry them through the following winter. Twice since then I have bought Italian queens that were but very little better. Now, suppose our apiary had been stocked with such queens as those last spring. If so, instead of our having over 35 tons of honey for sale this fall, we should have had to buy several tons of sugar for feed.

How natural it would have been, if we had those miserable bees, to lay all the blame on the poor season or on the poor location; or, if some one had brought a few colonies of bees within five or six miles of the apiary, how some would have growled about the infringement on their territory, and the overstocked locality! Yes, my friends, too many of you have allowed your bees to degenerate into a miserable lot of hybrid mongrels that are not worth the room they occupy in the bee-yard.

Young Italian queens reared from the very best honey-gathering strains are now so cheap that I am very sure none of you can afford to take your chances on going through another season with poor stock. I will admit it takes some money and some work to requeen an apiary; but if rightly done it will pay you well, even the first summer. Then see what a fine yard you will have afterward.

In answering some of those other questions I will say, first, the season is of more importance than any other one thing; then the strain of bees; the management; and, after these, the location and some other less important matters.

My friends, there is no luck and chance in bee-keeping. If your bees don't give you any surplus, pry into every thing connected with them until you know the reason why. I can not understand how some men can be so indifferent to the most vital parts of their business.

Above all things, don't be discouraged when the losses come, as come they will; let them find you more determined than ever to push on until success and all its pleasures crown your years of labor.

Delanson, N. Y.

[That Root queen which we valued at $200 died some two years ago. We have none of her daughters that are her equal, although some are very good. We would give $500 if we could put her back in the apiary when she was six months old—yes, we would make it $1000. We have many other testimonials showing the intrinsic merit of this stock. When we claimed this queen was something remarkable, many of our friends did not believe it. Some of them even scored us for putting the price of $200 on her. Others said that no queen could be worth $200.

I want to say in this connection that one reason why this $200 queen was so valuable was because her own bees as well as the bees of her daughters showed long tongues. But length of tongue was not the only valuable quality possessed by her stock, as many hundreds who tested it can certify.

Now, lest this may sound like an advertisement I would say that the old queen is dead, and none of her daughters show up as well. It is doubtful whether we could furnish stock as good as that sent to Mr. Alexander. The particular point I wish to bring out is this: That a few queens are extraordinary, and it pays to use for honey-production only the very best. Nearly every bee-keeper has some one queen that is clear ahead of all the rest. Breed from her exclusively.—Ed.]

THE UTAH HONEY AND WAX EXHIBIT

In the Agricultural Building at the St. Louis Fair.

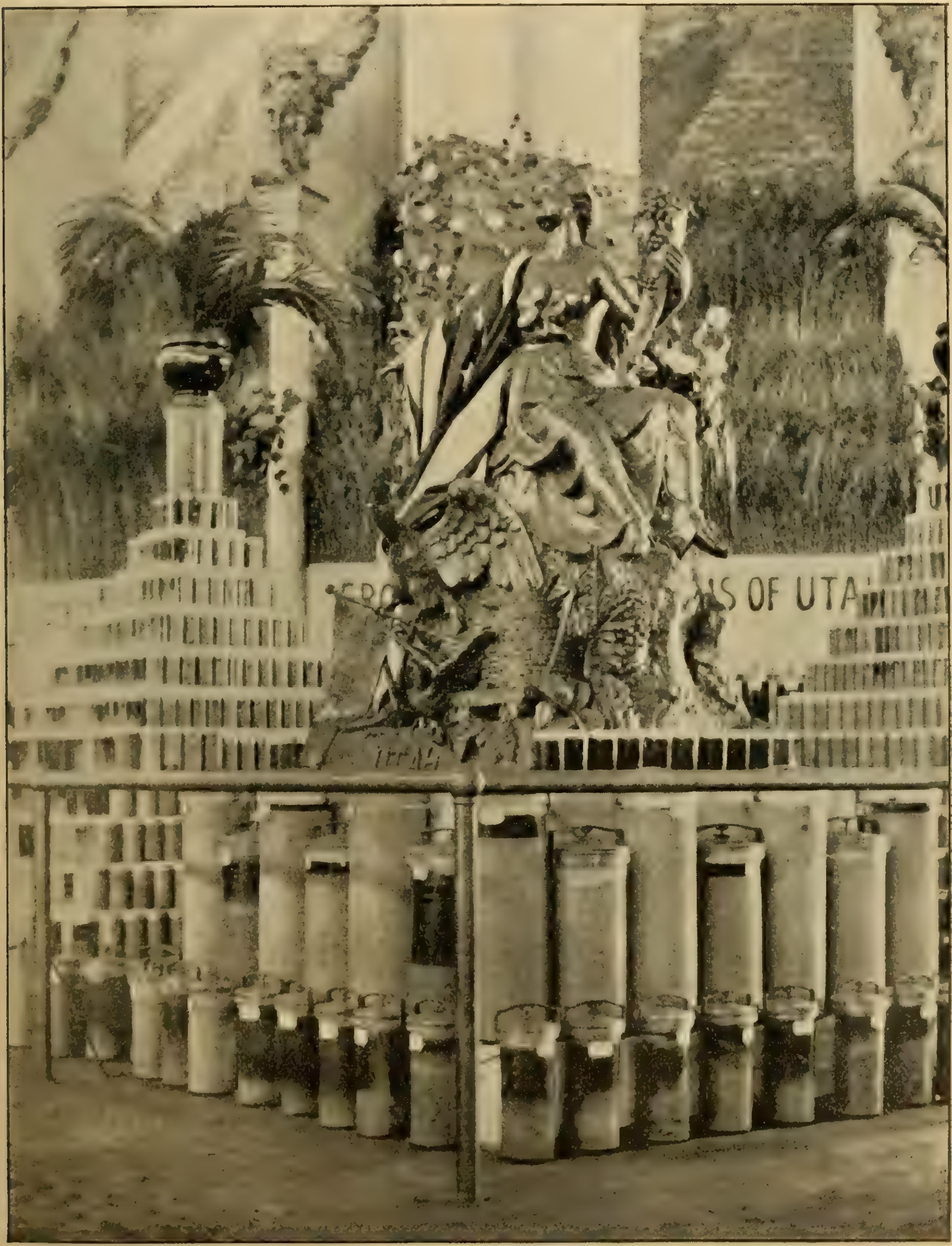
BY L. D. STILSON.

The Utah exhibit of honey and beeswax at the World's Fair was very unique in design, and it certainly was an artist who could put up such a one. The central figure of wax represented the Goddess of Liberty sitting on her throne, a bee-hive. At her feet lay the implements of agriculture—the hoe, rake, scythe, pick, shovel, all made of beeswax. Over her shoulders was thrown the American flag, while behind was a ton or so of the finest alfalfa honey, extracted. This exhibit was in charge of Miss Hendershot, a former Nebraska girl, who could tell you more about the resources of Utah than half the men who had lived there all their lives.

York, Neb.

[Those who visited the Agricultural Building at the recent fair in St. Louis will remember some beautiful sculpture work in butter, showing cows, and milkmaids in the act of milking. Some of those pieces cost something like $3000. There was one wax exhibit that was, perhaps, the most expensive and most unique that has ever been exhibited at any exposition of any kind. I refer to Utah's honey and wax exhibit under the direct charge of Miss Hendershot.

Immediately after the St. Louis convention Mr. L. D. Stilson piloted a party of



UTAH'S HONEY AND WAX EXHIBIT IN THE AGRICULTURAL BUILDING AT THE WORLD'S FAIR, ST. LOUIS.

bee-keepers through that immense building, and in the course of our wandering brought us to this exhibit. I requested Mr. Stilson to secure for me a photo, which he did, and his letter above is in explanation. If I remember correctly the goddess in wax was life size, and the whole substructure showing the hives, flags, etc., was also wax. The honey in the big jars in the foreground, as will be noticed by the color, is candied, for alfalfa will assume that color in a comparatively short time. Some of the jars are partially candied, and some wholly so. Taking it all in all, the exhibit was a remarkable one. The wax sculpture work could not have cost much less than three or four thousand dollars, if the figure paid for the same class of work in the dairy department would be any criterion. —ED.]

THE DITTMERS AND THEIR FOUNDATION BUSINESS.

Editor York's Visit at Their Place.

It was my pleasure to meet Mr. and Mrs. Dittmer at the Chicago-Northwestern convention a few weeks ago. I had previously read the sketch of them and their business, in the *American Bee Journal*, and was prepared to meet some very nice people, and I did. I had a most enjoyable chat with both Mr. and Mrs. Dittmer at the breakfast-table—one that I shall long remember—and later on at Minneapolis I had the pleasure of meeting the two younger members of the family, who are chips of the old blocks. I am glad to place before our readers the sketch that appeared in the *American Bee Journal*, even if the Dittmers are competitors.—E. R. ROOT.

GUS DITTMER.

We left St. Paul at 8:30 Wednesday morning, Oct. 19, on the Chicago & Northwestern Railroad, and arrived at Augusta, Wis., at about 12:20 P. M. It was just beginning to rain—a sort of drizzle-drozzle. We inquired of the station-agent where Mr. Dittmer's factory was. "Gus Dittmer?" he asked. "Why, right across there," he pointed; "where you see those red buildings."

We thanked him, and started for the "red buildings." By the way, Mr. Dittmer has done his share toward "painting the town red," for he has four buildings of that color devoted to the bee-supply and comb-foundation business.

It was a little late, so we stopped at the hotel for dinner, after which we went on to Mr. Dittmer's. Arriving, we opened his office door, and there he was as busy as a honey-bee in a basswood-blossom. Of course he was surprised to see us, as he was not expecting us at all. We had met him at the Wisconsin convention last February, so we were not entire strangers to each other. He is the excellent secretary of the State Bee-keepers' Association.

After a little visiting he took us over to his pleasant home to meet his good wife, daughters, and son. The second son, Clarence, had left about a month before to attend school in a Kansas university, having graduated from the Augusta schools last June. "Fred" (24 years) and "Bessie" (22) are the oldest son and daughter, respectively, and are the main helpers in the business.

Fred is really his father's right-hand man, having entire charge of the manufacturing and shipping, while Mr. Dittmer attends to all the office work, melting wax, and has a general supervision of the business.

Bessie runs a comb-foundation machine as easily as many another young lady would run a sewing-machine. The fact is, that the whole Dittmer family are "in the business," and they are a happy family. They seem to enjoy each other so much. We shall not soon forget our stay there.

We had never before seen comb foundation manufactured, so here was our chance. Every thing was open to us except the sheeting process, which is one of the Dittmer secrets. We should judge, however, from what Mr. D. said, that this process of sheeting beeswax is superior to that of the Weed process.

It was very interesting to see the machine turn out the clear, bright surplus foundation and pile it up with sheets of tissue paper between the sheets of foundation, all done automatically. Mr. D. probably has the only automatic papering arrangement there is in existence. It is a very simple arrangement indeed; and the proper length of both paper and foundation is cut off together with one movement of the sharp knife.

Mr. Dittmer himself studied out all of his comb-foundation methods, except, of course, the roller mills through which the long plain sheets of beeswax pass and receive the impressions of the comb-cells. It took him several years to perfect his beeswax melting, purifying, and sheeting processes. It all involves much labor and care, but when his beeswax is ready for the foundation-mill it is almost as transparent and free from impurities as glass, comparatively speaking.

Mr. Dittmer's output of comb foundation this year (1904) will be about 25,000 pounds. His daily capacity is about 1500 pounds. We were surprised to learn this. The fact is, his product has been received with such general favor among bee-keepers that the demand has steadily increased until he is now, we believe, third in the list of comb-foundation makers in this country. Next year, if the season proves good, we shouldn't be surprised to see him occupy second place. He is so energetic and enthusiastic, and there is such a "get there" way about him and his whole family, that he is bound to succeed. Well, he deserves all the success that may come to him. All men like to see an honest, industrious man win. Gus Dittmer is a winner. You can put that down somewhere He is grateful for the patronage that has come to him, and is ready to welcome more.

It is truly wonderful to see what Mr. Dittmer has accomplished since the disastrous factory fire which almost wiped him out last February. An ordinary mortal would have given up the battle. But not so with Mr. Dittmer. He and his faithful family gathered themselves together as quickly as possible. Loyal friends and neighbors volunteered all kinds of assistance. Some offered him all the cash he might need. Mr. Dittmer said it was almost worth the fire loss to see how true were proven some of their friendships. It strengthened their faith in humanity. But, after all, the fire was a hard blow in another way, as it put off several years the long-hoped-for new dwelling-house. Still, that will be on hand shortly, and will be appreciated all the more when it does come.

Augusta is a town of 1500 inhabitants, in a rich agricultural district Mr. Dittmer has resided there practically all his life, although he was born in Prussia, Germany. He is a prominent citizen in his town and county, and active in all good causes. His habits have been such as would invariably produce the best in character as well as in substantial results, as the world measures success. These characteristics are shared in by Mrs. Dittmer, and thus they are bequeathing to their children a legacy richer and more enduring than that of financial wealth or earthly position. Character and education—the best of life's equipments—can not be purchased or even transferred by order. They are the result of a steady growth and development throughout the years, hence their higher and more lasting value.

GUS DITTMER'S FOUNDATION-FACTORY, AUGUSTA, WIS.

HOFFMAN FRAMES WITHOUT THE V EDGES.

Use Thinner Top-bar, and Thicker End-bars and Bottom-bars, with Heavier Nails; Hoffman Not a Bad Frame.

BY E. F. ATWATER.

Those two articles on Hoffman frames in the Nov. 15th issue are just about right, according to my experience. I have handled for two years 75 colonies on Hoffman frames, with both edges of end-bar square, and have found no difficulty, and, as C. Davenport so well says, the regular Hoffman frame as now made can be and is nailed in three different ways, and is even shown in two different ways in your catalog.

H. H. Hyde and C. Davenport are also emphatically right about there being no necessity for a $\frac{7}{8}$-thick top-bar. Your idea "that a frame with a $\frac{7}{8}$-thick top-bar is very much stiffer than one with only a $\frac{1}{2}$-inch bar," may be true if inefficient one-inch nails are used; but if you will take a hint from W. L. Coggshall, and make end-bars at least $\frac{3}{8}$-inch thick, then nail down with 5 or 6 penny box nails you will still have an exceedingly stiff frame, though the top-bar be only $\frac{1}{2}$ or $\frac{5}{8}$ inch — in fact, a stiffer frame than the regular Hoffman with small nails. I know this after the use of about 2000 such frames the past season.

Top-bar full length? Yes, sir. That little assertion in your catalog, regarding such top-bars and the men who prefer them, "most likely they do not handle frames enough to make it an object to have them easily movable," is away off. You must use a pry with any frame, and it takes no longer to pry loose a long top-bar than a short one.

Davenport's suggestion of pointing the top-bar at ends may be good; and, as he says, the top-bar must be full width to the end, and not be made narrower to allow a better finger-hold, and thereby be very seriously weakened at a vital point. H. H. Hyde is on the right track in demanding a thicker bottom-bar. I have several thousand frames in use with bottom-bars $\frac{5}{16}$ thick, and they are much more satisfactory than the usual thickness of $\frac{1}{4}$ inch.

Among some bees which I bought a year

ago there is quite a variety of Hoffman frames. There are some made by E. Kretchmer, years ago, in which the top-bar is full width to the end; others of Root's, Lewis', and other makes which I can not identify. There are a few very nicely made Hoffman frames with end-bars ⅜ inch thick, and both edges square. If these latter Hoffman frames had a top-bar full width to the end they would be ideal for my use.

After trying 2000 shallow unspaced frames, hanging on nails, many thousand of various other unspaced types, including the Coggshall pattern (best of all unspaced frames), I am not yet prepared to say that the Hoffman is not a good frame.

Meridian, Idaho, Dec. 26.

Conversations
With
Doolittle

FEEDING BEES IN SPRING.

A knock at the door. Mrs. D. opens. Then I hear, "Is Mr. Doolittle in?"

"Yes, come in," Mrs. D. replies, and a tall good-looking man is ushered into my sanctum.

"My name is Mitchell, and I came to have a little chat with you about feeding bees in the spring."

"Do you think it will be necessary for you to feed much, Mr. Mitchell?"

"I fear so, as my bees went into winter quarters last fall light in stores."

"I think it would have been the part of wisdom to feed them last September."

"Undoubtedly it would; but business and sickness prevented, so it is too late to discuss that part now. How would it do to feed outdoors, allowing the bees to go a few rods for the feed?"

"Outside feeding has been recommended in the past by some good apiarists; and where there are no bees, either in the woods near by or at some of the neighboring farms or houses within two miles of the one who desires to feed, the plan will do. But as a rule the person undertaking feeding in such a way finds out sooner or later that he is feeding many other bees as well as his own, and it is not a really pleasant fact to know that you are feeding other bees, going to dollars of expense often in this way, from which you can not expect to reap any pecuniary benefit."

"But, would not this be the best way if you were sure of feeding no other bees than your own?"

"There are other items which enter in here that it is well to look after. Such feeding is very liable to engender robbing, especially if the feed given contains honey to any amount; and if given in the scanty supply that is often recommended in stimulative feeding, when the feed gives out, along in the hottest part of the day, the scent of the just-stored feed from the hives places a great temptation before such bees as have just before been carrying feed to their fullest capacity, on now finding themselves suddenly deprived of any more work to do; so they set about trying, in an almost maddened way, to get the savory sweet from the hives from which the savor comes; and woe betide the weaker colonies that do not have sufficient numbers to repel the attack of a numerous throng of excited marauders which have been appetite-whetted only just before, with nothing now, in a legitimate sense, to supply that appetite. Bees placed in such a condition are made fools and robbers beyond almost any thing else you can think of."

"I had not thought of this robbing part. I had a big time of robbing last spring; and if outside feeding would have a tendency to make matters worse, it certainly is something worth considering."

"You are certainly right, there. But about the worst feature of outside feeding we have not touched on yet."

"Possible! What is that?"

"By such outside feeding, bees can not be fed in *proportion to their needs*, one colony as compared with another."

"How is that?"

"Some of the colonies in the yard may have all the honey in their hives that is for their best good, while other colonies may be nearly or entirely destitute, and in a wholesale outside feeding there is nothing to hinder those colonies having more honey than they need from securing as much or more of the feed than those on the verge of starvation; and thus it comes about that, while the needy ones are helped, those having an abundance are hindered."

"How can they be hindered by feed at this (spring) time of the year?"

"Easily. By the amount coming into the hive taking up the already scanty supply of cells left vacant for the queen to deposit her eggs in. Thus we have a crowding-out of the queen just at the time she should have all the room needed in which to deposit eggs which are to develop into workers for the honey harvest only a little way ahead."

"You are raising objections I had not thought possible. Have you any more?"

"Yes, and this last one often proves nearly as formidable as the others. Should the day in which you commence to feed prove to be one of those fitful ones which we very often have in the spring, after an entirely clear and pleasant morning, a day when the wind rises up, and floating clouds pass over the sun, causing a few minutes of bright sunshine and a much longer number of chilly minutes, many bees will be lost by trying to carry the feed at a time when they will become chilled in loading up and in trying to fly home, and the loss of a single bee at this season of the year is of more account than the loss of several hundred after the harvest of white honey is over. This same loss is liable to occur on all such fitful days, but not to such a great extent as on the first one, when the bees are liable to go wild with the excitement the new-found stores produce. I know there is something very fascinating about this outside feeding, especially seeing the bees go to and fro in their eager scramble after the coveted sweets; but after years of experimenting along this line I have come to the conclusion that such feeding, as a rule, is a delusion and a snare."

"Well, how *would* you feed?"

"By using a division-board feeder, placing one in each hive where the colony needed feeding. As soon after the bees have their first flight in spring as it is possible to do so, each colony should be examined regarding their supply of stores, and all that do not have sufficient to carry them through to the time you may reasonably expect the bees can get nectar from the fields, should have a feeder given them; and on every evening, when not too cold, they should be fed."

"How much do you consider sufficient to carry a colony from their first flight in the spring to the time of the blooming of flowers which yield nectar?"

"I place the amount from twelve to fifteen pounds. Then, if the weather is favorable during all of the early bloom, especially the fruit-trees, they need no further looking after as to their stores; but should the weather be such that the bees can secure little or nothing during fruit-bloom, it may be necessary to feed even those which had fifteen pounds at the opening of spring, for honey is consumed very rapidly when brood-rearing becomes well advanced."

"Then, such as had fifteen pounds and over of stores in early spring, you would not feed at all, should the season prove a good one?"

"That is the way I feel in the matter. While many believe that it pays to feed nightly for stimulative purposes, more than thirty years of experience along the line of feeding compels me to say that, with myself, there is not enough gain made by such feeding, over and above what brood the bees would naturally rear where they have *plenty* of stores, to pay for the extra work of feeding."

"How much would you feed each night where any colony was deficient in stores?"

"If they were entirely destitute, then I should want to feed enough the first two or three nights to insure against starvation, should a cold spell come on during which it would be impracticable to feed. After this, and with all colonies which had from three to ten pounds of stores, I would feed about a teacupful of thin warm sweet, it being about the consistency of what the bees generally secure from the fields, feeding every night when warm enough, till the flowers begin to yield nectar."

"I must be going now."

"All right; but before you go I wish to say that you can tell yourself about its paying *you* to feed if you will keep watch of these fed colonies, and those having plenty of stores so that they need no feeding. Your experience may be different from my own. But don't forget to take one of the combs of sealed honey every week or ten days from your colony having plenty of stores, and put it in the center of the brood-nest, after having broken the cappings to the same by passing a knife flatwise over it, on the plan of spreading the brood given during the past by myself and others. This last is the best plan of stimulating brood-rearing which I know of. The removing of this honey causes the bees to feed the queen, and she in turn deposits more eggs than she otherwise would, while the excitement caused by the removal of the honey creates a warmth in the hive which overcomes any drawing-away from the brood which might occur on any cold spell coming just after the brood had been spread by inserting an empty comb in the center of the brood-nest, as is generally done in using this plan of stimulating, looking toward an increase of bees in time to take advantage of any special honey harvest that may occur in our locality."

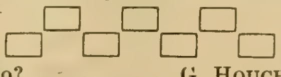
[See editorial, elsewhere.—ED.]

Heads of Grain
from different fields

TURNING ON THE LIGHT TO STOP THIEVING; ARRANGEMENT OF HIVES IN A HOUSE-APIARY.

I have been here two years. I began with 4 colonies, and now have 17. Thieves have broken in on me twice. I followed your suggestion of putting up a notice of $100 reward for their arrest and conviction, but they paid no attention; and the second visit was made, and, of course, now I must resort to something else. I thought I would try a bright lantern in my little apiary. Its bright shining might cause some apprehension on their part of hearing something drop. They haven't visited me since the lantern was put up.

I am putting up a bee-house 45×7×6½ ft. high. Now, can't you tell me how far apart I ought to put my hives in this house, hives on both sides? Will it be advisable to put two rows on each side, the second row to be two feet above and just between those below, thus— on the horizontal, about five feet apart, or nearly so?



G. HOUCHINS.

Huntington, West Va.

[Your scheme of turning on the light to

stop thieving is excellent. Still, the plan of offering a reward will, in many cases and localities, serve to give notice to the parties who are trespassing that you mean business and will prosecute to the fullest extent of the law. There is another plan that would work better in your case, and give you immediate notice of the night marauders, and at the same time give you a chance to bring into play a shotgun loaded with very fine shot—not coarse enough to kill but large enough to serve as a means of identification. Even if the parties were not identified, one *warm reception* like this would probably prevent them from taking the same chance again. The plan, briefly stated, is as follows: Run a black linen thread through screw-eyes attached to stakes in the ground, clear around the bee-yard. One end of this thread must be made fast, while the other should be secured to a wooden plug separating two brass springs. These should be nicely adjusted so that the plug, when jerked out by the black thread, will allow the two ends of the brass spring to come together and complete the circuit of an electric bell, the bell being stationed at the head of your bed. This plan has been tried in stopping trespassers in chicken-yards and other places, and works successfully. The black thread should be so stationed that it will be about two feet above the ground, and the screw-eyes should be so placed as not to cause any friction on the thread. The legs of the trespasser runs into it, because he can't see such a fine black thread at night, thus causing the plug to be pulled out, allowing the two ends of the battery wires to come in contact. Even if only a blank load be fired at him he will be so scared as not to try it again.

Any electrician can furnish the necessary outfit at a very small cost.

By a "bee-house" I suppose you mean a house-apiary in which the hives are located, with free access to the outer air through a tube reaching through the house-wall to the entrance proper of the hive. It does not make much difference how the hives are arranged. In any case, use outdoor hives and place them together as closely as possible, and yet permit of handling. There should be two rows, one about two feet above the lower one and on each side of the house. The outer entrance or doorstep, we will say, of each colony, on the outside, should be painted different colors. To help the bees further to distinguish their entrances, make each alighting-board or entrance different from the one next to it.—Ed.]

SHAKING OR BRUSHING TO KEEP DOWN SWARMING; TWO IMPORTANT REQUISITES.

I have six colonies of bees, five of which are last season's swarms. The coming season I wish to make honey rather than increase; that is, I do not care for more than three or four swarms (or new colonies). I am unable to be at my bee-yard all through the day to watch for swarms, so I should like to know if there is not some way I could discourage swarming, and, instead, make such increase as I wish by "shook" swarms, or some similar method of artificial swarming. Please state the proper way to do this. In this section the honey-season is usually of short duration; and, while the one *old* colony I had last year gave me two good swarms (one the day after the other), it did not make one pound of surplus honey. We had a moderate honey-flow last season, and white clover stayed in bloom longer than usual, though it did not seem to produce as much honey as it generally does, our main dependence appearing to have been the poplar, locust, and fruit-blossom.

Nashville, Tenn., Jan. 10. Tennessee.

[The shaken or "shook" swarm method, as some prefer to call it, will, I think, solve your difficulty if you follow carefully the directions. There are two very important requisites to make the plan a success. First, wait till the bees begin to show signs of swarming before shaking or brushing; second, just before shaking, smoke the bees thoroughly and get them to fill themselves with honey, and otherwise give them a good jouncing or bumping; and then when the bees are run into a hive they are full of honey just as they are when they swarm out naturally. Without this filling-up the bees are liable to swarm out for want of food, even if the act be performed when the bees are preparing to swarm.—Ed.]

CLEANSING FLIGHT WHEN SNOW IS ON THE GROUND.

1. When bees are wintered in the cellar, will it do to take them out for a cleansing flight while there is snow on the ground? Some tell me that the bees will alight on the snow and become chilled, even if the atmosphere is quite warm. In Doolittle's Conversations he says it is all right; but while that might do in New York I should like to know if it will hold good for Minnesota.

2. I have been thinking some of sowing buckwheat among the corn when we cultivate the last time. Do you think the bees would get enough out of it to make it pay?

Albert Lea, Minn. C. M. Jenson.

[1. It would be all right to let your bees have a cleansing flight, even if snow is on the ground, providing the temperature is up to 60, and it is thawing rapidly. If you are reasonably sure of having a warmer day, wait till it comes up to a higher temperature.

2. You will have to sow a great deal of buckwheat to make any showing in the hives. The plant does not yield very much honey, so far as I know, except in New York. If the crop will pay you aside from the honey, you would be warranted in sowing it in the manner suggested. It takes an immense acreage of buckwheat to produce any surplus. We have had from 10 to 25 acres within two miles of our home yard; and while the bees worked busily on the plant in

the morning and again toward night, the amount actually stored was almost imperceptible. The probabilities are that the conditions in our locality are not favorable for much secretion of nectar from the plant. —Ed.]

DOOLITTLE'S HIVE; IS THERE ANY ADVANTAGE IN CUBICAL SHAPE? PUNIC BEES.

Would you please give a description of the bee-hive, with dimensions, used by Mr. Doolittle? also the favorable and unfavorable points of it from your point of view? Would you also give your views of a divisible hive with the brood-nest about a cube in form, aside from the inconvenience of non-standard size for supplies?

Have the Punic bees any advantage over the Italians? F. B. Hill.

Sioux Falls, S. D., Jan. 4.

[Mr. Doolittle, up till within a few years back, used almost exclusively the Gallup hive, the frame of which was 11¼ square outside measure. This would make the inside of the hive approximately 12 inches in the clear. But in more recent years Mr. Doolittle bought an out-apiary consisting of Langstroth hives; and if I am correct it is now his opinion that beginners had better adopt that hive because of its being standard. There is no special advantage in a cubical shape over the Langstroth, except perhaps in a few localities for wintering. Similarly I would not advise a divisible brood-nest in the shape of a cube, and a cube is not adapted for comb-honey production because of the small amount of section room. The Langstroth hive, for example, allows of a large amount of super space on top of the brood-nest; and in these days, when comb honey is produced so much, this is quite an advantage.

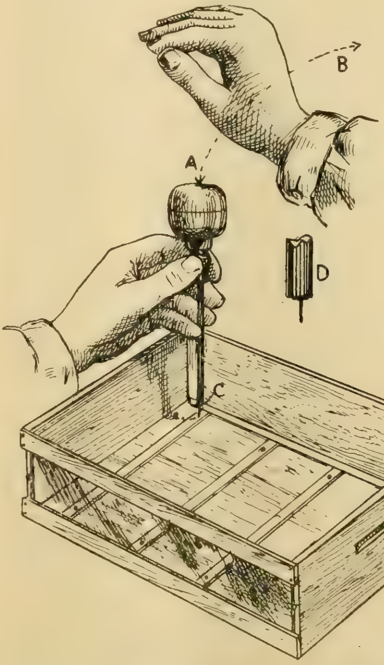
We tested the so-called Punic bees a few years ago. We did not discover that they had any quality that was in any way superior to any of the bees in this country. They were fearful propolizers, bad about stinging, and in my opinion they were not even as good bees for general use as the common blacks of this country. They were very much inferior to Italians; and from reports I have read of them since, I should not think any one would be wise in introducing them into his yard. A few Punic drones might make a bad mix-up in the stock that could not easily be eradicated.—Ed.]

THE "LIGHTNING" NAILER; HOW TO SECURE NO-DRIP CLEATS.

In the winter of 1904 I was nailing no-drip strips into 15-lb. shipping-cases. The cases were so short that I had difficulty in getting my tack-hammer into them in a position where it could be used to any advantage; and after getting several painful raps on my numb fingers (for my shop wasn't very warm) I decided that there must be some better way of doing the work.

After casting about in my mind for a time for a suitable instrument I made the tool shown in the cut. It is about 8 inches long over all, and consists of two parts, a wooden handle and a magnetized steel shank with a smooth flattened end to which the head of the tack adheres. I have used this tool the past season, and it has proved itself to be the very thing wanted, doing its work silently and pounding no fingers.

Besides being very useful for nailing down no-drip sticks it is the best thing that I have found yet for putting foundation in frames, for with it the tightening-strip can be forced down, and small nails thrust into it without tearing and breaking the foundation as one frequently does with a hammer.



SMITH'S LIGHTNING NAILER.

In use, the tool is grasped in the right hand by the handle (something like a screw-driver), and the end of the shank is brought in contact with one of the tacks, which should previously be scattered about on the top of the bench; then with the left hand hold the point of the instrument steady to prevent the tack from toppling over, and thrust down with the right, which firmly seats the tack in the wood.

The tacks should be scattered enough so that not more than one will be attracted to the magnet at a time, and the tool held firm and true, with both hands, when pressing in a tack, to prevent it from toppling over.

I claim for it the following advantages:

1. It is noiseless. One can work in the kitchen, or anywhere for that matter, with no annoyance to other people.

2. It will do the work quicker, picking up the tack, which is always a difficult job with the small nails used for this purpose, and

thrusting it home with practically one motion, while with a hammer the tack has to be picked up, started, and then pounded in.

3. It can not pound your fingers, they being out of the way.

4. It will last indefinitely, there being no hammering done with it to destroy its magnetism.

Like all other tools, one has to learn to use it. Who would think of keeping bees and getting along without a hammer? Still, every one can remember the jammed fingers he got when a boy learning to use this same tool. ROBERT H. SMITH.

Brasher Iron Works, N. Y.

[The illustrations show a method of using the tool differently from that described by Mr. Smith. Mr. S. sent it on to me to test, and on the first few trials it did not prove to be satisfactory, because I picked up a tack, then jammed the tool, tack and all, with one blow into the wood. The result was, the tack would topple over instead of entering the wood. After some correspondence with Mr. Smith I tried the tool again, but this time I held the tool in my left hand, after picking up the tack, then placed the point of the tack with the tool where it would enter the wood. One blow of the right hand, while holding the tack and tool in place with the left, would drive the tack home. I gathered the impression this was the way the tool was used, and instructed our artist to make the drawing accordingly. It works either way, and the reader can take his choice.

It is, perhaps, proper to state that in almost any hardware store small magnetic tack-hammers can be purchased which will do the work of this tool very satisfactorily. If the handle is too long, it can be cut off so it can be used in places that are somewhat cramped.

It is the general practice nowadays not to use nails to secure the no-drip cleats. Some use glue or mucilage, and others use only thick honey; and, by the way, honey makes a very good paste. A little honey daubed on the back of the cleat will hold it securely against the paper tray. Place it right, and it will stay where it is put.

The tool of Mr. Smith is a very simple one, however, and may be found to be very useful in some kinds of light nailing—more handy, perhaps, than the magnetic tack-hammer. In all of our light work where we do not use nailing-machines, we use these small magnetic hammers; and any bee-keeper or mechanic who has not familiarized himself with their use, has certainly got something to learn in the way of saving time.

I can see one distinctive advantage in favor of the Smith tool, and that is for nailing numbering-tags or wire cloth on a hive containing a populous colony. It may be handy, also, in securing wire cloth on queen-cages. It is not advisable to give the queen-cage a heavy blow, especially if the queen has been taken in the height of her egg-laying from a strong colony.—ED.]

PICKLED BROOD; HOW HALTER GAVE THE TREATMENT.

In reference to note on page 1144 I would say that, when I started treatment for pickled brood, I shook the bees with the old queen into a clean hive with foundation starters, placing the same on the old stand. The frames and brood removed were placed in hives by themselves some distance away, adding in some instances a few frames with brood (space allowing), from colonies which showed the malady in a milder form. Being queenless the spreading of disease was naturally checked. Where the bees built queen-cells I let them rear their own queen; in others I placed ripe cells after expiration of about ten days, thus giving the bees ample time to make a thorough "house-cleaning for the reception of the young queen, as they seem to be more particular in cleaning and repairing cells just before the young queen begins to lay than at any other time, led, perhaps, by instinct of reproduction.

The "shook" swarms were treated later by destroying the old queen and placing a queen-cell in due time. All queens reared were from stock in the apiary when pickled brood appeard.

Bees treated were mostly thoroughbred Italians from different strains, but none were immune to the malady. There were in the neighborhood of fifty colonies which contained pickled brood during the past season, but no indication of any disease after Aug. 20. It was not necessary to give them all treatment as described. A. J. HALTER.

Akron, O., Dec. 24.

NONE AS SATISFACTORY AS THE HOFFMAN; WHY THE V EDGE SHOULD BE RETAINED.

I have tried several kinds of frames during the last few years, and find none as satisfactory as the Hoffman. The V-edge feature certainly should not be condemned because some nail them haphazard and they fail to fit. With both edges square I think the trouble with propolis would be greatly increased. In theory they can be kept crowded close together, and the points of contact kept clean; but propolis will work in, and the wide edges will not come together even in hot weather. Of course, to experts this looks useless; but fingers and thumbs that are a trifle clumsy can be greatly helped by applying a little honey to the working parts before trying to catch a queen by the wings. H. E. CROWTHER.

North Kingsville, O., Jan. 10.

HOFFMAN NOT LIKED.

I have used quite a good many kinds of frames. I began with the Langstroth first, and have tried the most of them on down. I do not like the Hoffman very well. I can not handle them as well as some others. I like the Simplicity the best of any. I think they are more easily handled than any others I have tried. F. K. THOMPSON.

Chillicothe, Mo., Jan. 6.

OUR HOMES,

BY A. I. ROOT.

I will praise thee, for I am fearfully and wonderfully made: marvelous are thy works.—PSALM 139 : 14.

A few evenings ago a young lady at our house stood before a little machine and sang a prettly little melody. I had seen the same thing before, and my *imagination* pictured the machine listening intently with its head tipped a little to one side. After she had finished, the machine was asked to repeat to us what it had heard; and, sure enough, the whole piece was given back to us—not only every word, but every note and inflection. The machine did not have it quite as loud, it is true, as the original human voice; but it was an exact copy. It is truly wonderful how a human being remembers what he has heard; but this little machine, costing only a few dollars, was away ahead in *accuracy* of any human being who ever lived. It gave an *exact* copy of what it had heard. You are all familiar with it; in fact, these little phonographs are in many of your homes.*

A few issues back I spoke of hearing at school in my boyhood of a machine that would fasten your picture just as you stood before a mirror. This little phonograph in a like manner fastens the human voice, catches it, and holds it with fingers of steel; and after this young lady who sang for us that evening has been dead and gone a thousand years that little cylinder will give back the tones of her voice, without a mistake. People forget; but machinery never forgets.

Philosophers and scientists have been puzzled since the world began to know how it is that one can treasure up in his memory the events of every-day life, and reproduce them fifty, sixty, or even seventy years later. How is it possible that this little brain, comparatively, of a single person, can take down and hold for future reference the transactions of every day for a lifetime? Who is there, who can meditate on the above, who has not said to himself in the language of the Psalmist, "I am fearfully and wonderfully made; marvelous are thy works"? It would be a big task to write down in a book every word we utter, say in one day. Why, bless me! it would take a big book to record just the sayings in one day of some *women* I know of; and this reminds me I believe some of the Spanish women in Cuba would utter more words in twenty minutes than anybody else I ever heard talk in the whole world. I sometimes wondered whether the listener understood it all, or whether a part of it was simply to astonish a stranger who happened to be present. Well, let us get back to our theme.

If it would take a big book to take down all your talk in just one day, how much of a book would it require for a whole year? Now try to comprehend, if you please, how many books it would take for sixty or seventy years. Now just hold your breath. None of us speak out loud *all* we think. Will somebody make an estimate of the number of books or libraries it would take to give the history of all the thoughts and actions of even a single person during his whole life? But I have not got to the end yet. There are in this world of ours about 1500 million people; and each one of these millions lives a human life more or less—has thoughts and actions and words—yes, and a memory, so that each person of ordinary ability can state pretty positively all he has *not* done in his life, even if he could not enumerate all the things he *has* done. Do you not agree that the Psalmist is right in saying that we are fearfully and wonderfully made? Scientists have at different times tried to conjecture how the great Creator, the all-wise Father, had managed to pack into a little human brain the memory of all that passes in a lifetime. I do not think any of them presume to give any kind of answer; and although it may be a little bit audacious, suppose I undertake it.

When listening to that phonograph it occurred to me that memory might be something like that machine. When you buy your machines you get for ten or fifteen cents some plain smooth rolls without any thing on them. One of these rolls will hold a song or a hymn if it is not too long; but with a magnifying-glass you can look at the surface of the roll after it is indented, and see where the steel point has made little cavities of different depths and widths, and different distances apart. When the machine "talks back" a suitable steel spring or finger drops into these cavities. You have probably seen the whole thing. So have I; but yet it looks like witchcraft every time I see it. Years ago they told us the light of day is made of seven colors, and that it could be pulled apart to prove it. They now tell us the human voice is made up of a lot of vibrations—I do not know but I should call them little explosions; and this phonograph proves it. All the tones are produced by vibrations of greater or less force, and nearer together or further apart. The indented cylinder proves it. Well, now, these brains of ours take in not only *sounds* through the ear, but something else through the eye; something else through the touch; something else through our feelings—anger, love, hatred, etc. If memory is seated in the brain, and it rather looks that way to us poor ignorant mortals, these vibrations, sensations, or cylinders with something engraved on them are probably laid away in this little brain of ours; and in order to have them convenient of access, Nature (perhaps I had better say God, the beloved Father) has planned compartments of pigeonholes for filing away these records—well, may be something like what they have in our large offices. Our own office adjoining is now filled with great cases and ingeniously planned files for putting away records so the clerks can get at them instantly. One of these great filing-cases near the center of our large office became so heavy that it caused the floor to sag a few days ago; and the business manager said before it was relieved of some of its burden it might acquire twice as much weight. All these great expensive cases are to record the transactions of our establishment for ten or fifteen years. Inventors have been at work very busily for the past few years in making these records so an expert clerk can lay his hand on any letter in a moment. The above is just to give you a little glimpse of what the human brain has to do with this wonderful faculty of memory. Why, almost any of us can answer a thousand questions positively, one after another, even though many of them may go back a good many years. If we can not remember all we *have* done, we can remember pretty well what we have *not* done.* Now, how is it possible for this little brain of ours to be so arranged that it can contain such a perfect record of, say, a life of fifty years? Well, that is not all. Not only is the record wonderful, but the most astonishing wonder of all is that a human being can instantly "place his finger" on any thing that has happened during that period of fifty years. Then there is one funny thing about this faculty of memory. If you are getting to be toward seventy years old you have noticed that you can recall things that happened fifty years ago far more distinctly than things that happened only five years ago. I wish I could go on and tell you whether this brain of ours, so fearfully and wonderfully made, uses *cylinders* like those of a phonograph to take down impressions, and files them away in convenient cabinets. But I think I will not go into that. I will, however, touch on something else that is almost as wonderful.

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* The machine mentioned above is really the property of our five-year-old grandson, or at least he handles it and calls it his, and he takes out the cylinders, puts in others, and manages it with the air of an expert. His favorite cylinder is a bell-ringing melody. It is just ringing bells and nothing else; but the bells ring so as to reproduce beautifully that little hymn in the Gospel Hymns—

"Ring the Bells of Heaven, there is Joy To-day."

I agree with Wynne that this bell-ringing cylinder throws all the rest in the shade. The melody is not only beautiful, but the thought that the little instrument can give out a clang of bells that might be supposed to come from a church-steeple (if one did not see the instrument) is but little short of miraculous; and when you afterward examine the cylinder with a magnifying-glass, and see that those wonderful tones so sharp and startling are the result of those little dots or indentations almost microscopic in size, it makes one feel as if he were getting an inner glimpse of the handiwork of the great Father who made the human eye, the human ear, and this whole wonderful organism, with the wonderful brain, the center and ruler of it all.

Man is not the only animal that has a memory. Our noble friend the horse has a magnificent memory. It often outstrips that of his owner. I once took a raw colt out of the field and proceeded to break her for my own use. My father-in-law said I might have her if I would teach her to work. I was quite a boy then, and two "green ones" met about that time. The colt and I were getting along finely, and she followed me around quite docile until I attempted to lead her into a stable with a low door. She was holding her head pretty high, and, being unacquainted with doors, she gave her head a tremendous bump on the stout timber overhead. I had to make a great many explanations and do a lot of coaxing before she would consent to try to go in that door after that. She somehow got the idea that the top of the door "ducked down" and hit her a clip. Well, years afterward, when I had entirely forgotten the circumstances of her colthood, and attempted to lead her into that same door, and although she was comparatively old and steady then, she eyed that timber above the door with great suspicion and fear. Not only the large animals but bees remember experiences. Man may imitate nature in a great many things; but I imagine it will be many years before he understands the machinery of memory.

I am going still further, friends. Living animals have brains; they have an individuality. They plan and reason to some extent; but there is a queer feature about *plants* also that seems akin to memory. Last summer I gave the children a little talk about plants, at the children's-day Sunday-school in Northern Michigan. I showed them how to make plants from green cuttings; and to illustrate I held in my hand a green twig from a Red Astrachan apple-tree. I put some sand in a little flower-pot. Then I poured on some water and stuck the apple twig in the sand. Then I set a glass tumbler over the plant, pot and all. I told the children if the sand was kept wet just right, and the temperature just right, that twig would put out roots, and in due time make an apple-tree. Then to illustrate how it is that plants *remember* I spoke something as follows:

"Children, suppose I talk to this apple twig in the pot just as I talk to you, and tell it a lot of things I want done, and ask it not to forget any one of them. I will say to this little twig or miniature apple-tree, 'Now, my young friend, I want you to grow up into a nice big apple-tree and bear apples.' We will suppose the tree nods its head, meaning it is ready to do its part. 'Now, little tree, I want you to remember to bear big handsome *red* apples.' We will suppose the tree says, 'All right.' Then I will say again, 'I want you to bear an *extra-early* apple.' The tree nods its head. 'And, finally, I want you to bear apples that are rather tart, because we want the first apples to make apple pies of.' You boys all like apple pies, don't you? Well, I might tell this little apple-tree a lot of other things, and it would remember *them every time*. If we were talking to a boy he would probably forget a good part of my talk; but an apple-tree *never* forgets. The nurserymen who sell apple-trees not only forget, but they cheat and swindle folks. The apple-tree itself never forgets, never tells a lie, and never cheats nor swindles. It follows directions to the very dot. I picked this twig from a Red Astrachan apple-tree as I came to Sunday-school, and this little twig, insignificant as it may look and seem, will carry out the program exactly as I have directed. It will not blunder, and produce a white apple, and it will not blunder and produce a sweet one nor a late one nor a *sour* one. It will do just exactly as it is directed to do, and that is more than you boys, many of you, could do without forgetting, no matter how hard you tried. Now, how is it, children," and I held the little plant up in the air, "that there can be packed in this little twig, with only three or four green leaves, the ability to produce a great big Red Astrachan apple and not make a single mistake in the program?[*] I have shown you some of the possibilities packed away out of sight in a little green twig; but let me tell you in closing that there are possibilities a thousand times greater, and of more importance to the world, packed away in the embryo life of every little boy and girl who sits before me. May God help you, each and all, to make a good use of these wonderful gifts he has bestowed on you, and bring *good* and *not* evil into this world of ours."

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* Some years ago a banker said he had a note with my name on it. I told him I never signed that note. But he was so sure it was my signature that he was willing to bet $1000 that I did sign it but had forgotten it. But I unhesitatingly declared positively that I never put my name on any note for that person. Some of my friends tried to persuade me that I was becoming forgetful in my old age, and that it really *was* my signature. Of course, I was right, and the young man finally confessed that he himself copied my signature. If it be true we can not *always* instantly recall what we *have* done, we can say very positively what we have *not* done, especially in the case of a forged signature.

HIGH PRESSURE GARDENING BY A. I. ROOT.

AMERICAN VARIETIES OF LETTUCE.

Did you ever! The Department of Agriculture, at Washington, has just put out a pretty good-sized book, pamphlet form, with 100 pages of reading-matter besides 27 pages of beautiful half-tone plates showing the different kinds of lettuce grown in America. As each plate contains two or more cuts of lettuce, there are something like *100 varieties* illustrated.[†] What astonishes me is that there is demand in this nation of ours for so *many* different kinds of lettuce. We have space to mention only one—the lettuce that it was my pleasure to introduce to the world, and name—the Grand Rapids. This book tells us the Grand Rapids is now listed by 164 seedsmen. Here is what it has to say about it:

> Probably one of the ten most largely grown varieties of the United States. The favorite for forcing in the West and other markets where hothouse lettuce is sold by weight and whose markets accept a bunching variety. It has largely replaced Black-seeded Simpson for this purpose. At Washington it does not succeed well outdoors, and is not recommended further South than this latitude. More easily grown in greenhouses than almost any other variety. Stands a great deal of neglect in watering and ventilation. A splendid shipper, and with many gardeners by far the best and most profitable sort for growing under glass. One of the coarser varieties, good in quality when grown outdoors, but becoming more tender and sweet when grown in greenhouses. More like Black-seeded Simpson than any other, not only in appearance, but also in usefulness and value. Its fringed leaves and general habit are most like Boston Curled. The young plants are hardly distinguishable from Hanson and Black-seeded Simpson. Grown in greenhouses the variety is very tall and upright in habit, not as described in the above notes, which apply only to outdoor specimens.

I hardly need tell you that the advent of the Grand Rapids lettuce introduced to the world a great rural industry, and one that was especially a boon to market-gardeners and florists as well, inasmuch as it is an industry that can be very easily managed in the winter time when all other garden-stuff is frozen up outdoors. There are just now *acres* of greenhouses right here in Ohio devoted to the growing of Grand Rapids lettuce. My impression is, the Department of Agriculture forwards this book on receipt of 10 cents; but I do not find the price on the bulletin. It was issued Dec. 23, 1904. If you want it, write to the United States Department of Agriculture, Washington, D. C. Do not write to *us*, for that will just make additional work.

AN APPLE STORY, AND SOMETHING ABOUT A LOCOMOTIVE ENGINEER AND HIS HIGH-PRESSURE GARDENING.

I read your articles with much pleasure, and note that, like myself, you are a lover of good apples. Thinking you would like to try some others I send you three of my favorite kinds. The bright red are McIntosh Red. The dark red are American Beauty, and the others are Palmer Greenings. The McIntosh is all right to eat now, but the others are not ripe enough. I am not an apple-grower on a large scale, but I grow a few of the best. I do my own grafting, etc. I am a locomotive engineer, but I spend most of my spare time among my flowers and plants. I keep bees. I took $43.75 worth of comb honey from two hives last summer. I grow rhubarb in the cellar all winter near the furnace. I have just put in seven roots. I grow it in the dark, you know. I get about ten pounds to a root. It is fine when the snow is two or three feet deep. I have only one-half acre of land, and two or three kinds of apples on a tree. I have to economize the room, but I enjoy it just the same. F. P. BRIGGS.

Ayer, Mass., Nov. 30.

Soon after the above, came a box by express containing a dozen or more beautiful apples. We have the McIntosh Red in our own orchard—at least the Pomological Department at Washington pronounced them so. Ours are a beautiful bright red, but they are rather small, and one would almost call them a sweet apple, while the McIntosh sent by friend Briggs was of good size, and neither sweet nor sour. But at the time they were received I pronounced it about the finest apple I ever tasted. Of course, I have said this a great many times, but you may make allowance. The others were too hard for use; but by the middle of January I pronounced the *Palmer Greening* about the finest apple I ever tasted; and while enjoying them, I inwardly thanked God for having placed it within the power of man to produce such beautiful apples. The American Beauty is still too hard to test fairly. I sent our good friend GLEANINGS a year to pay him for his trouble, and especially prepaying the express charges from Massachusetts; and in reply he sends some more in regard to his high-pressure gardening around his little home (*to be given in our next issue*), which I am sure will interest a great number of our readers. Such homes as the ones he describes are more to be desired than great riches or almost any thing else in this world.

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[*] That one little twig would not only make a big apple-tree, but it would produce an orchard of a hundred trees or more; and the ability, "memory," or what else you may call it, to do this *unerringly* is packed away *somewhere* in that little twig; and with some plants, even a little bit of one of the leaves, would answer, in the hands of an expert florist. The begonia, for instance, is propagated by cutting a leaf into many little bits. Each leaf in the cutting produces a little plant.

[†] American seedsmen recognize 444 varieties, and Prof. Tracy decides that of these at least 107 are distinct.

INOCULATION OF SOIL FOR LEGUMES; OR, CARRYING FERTILIZER IN YOUR "VEST POCKET" SUFFICIENT TO IMPROVE GREATLY AN ACRE OF GROUND.

The Department of Agriculture has issued a bulletin (No. 71) in regard to the above matter. In fact, the bulletin in my hand is *dated* Jan. 23, 1905. It came through the mails to-day, Jan. 26. This bulletin contains 72 pages of reading-matter and 9 of illustrations. During the past few years the Department of Agriculture has sent out about 12,500 packages of artificial cultures for preparing the seed of all the clovers and legumes so they will produce the nitrogen nodules we have several times talked about. These wonderful bacteria are sent in a little bit of bacteria-infected cotton. This cotton will hold millions of the little plants, if that is what they should be called. In order to give the bacteria a good chance you take a gallon of clean rain water and dissolve in it the chemical sent along with the bacteria. This is to cleanse the water from any bacteria already existing in it. The magic piece of cotton is then dropped into the solution. After 24 hours, add package 23; and in 24 hours *more*, if the liquid is kept at a warm temperature, but not greater than blood heat (97 degrees), the liquid will have assumed a cloudy or milky appearance, indicating that the bacteria have gone all through it, something as yeast goes through a suitable liquid. Now, your clover seed, beans, peas, or whatever it is, is to be thoroughly moistened with this liquid; then dried, and planted in the usual manner. The Department has already received over 2500 reports from all over the United States; and almost every one testifies that the legumes were not only greatly superior in luxuriance, but that the peculiar nitrogen nodules were found in abundance on the treated field, and almost none at all on the untreated. The plates in the back part of the bulletin make this whole matter exceedingly plain. Experiments have already been made with alfalfa and other clovers; cow peas, soy beans, velvet bean, garden peas, and sweet peas; and great benefit has accrued in almost every case where the bacteria were used according to directions. For either Bulletin 71 or inoculating material, address United States Department of Agriculture, Washington, D. C.

Below is something from Prof. Thorne, in answer to an inquiry from myself in regard to the nitro-culture that is being extensively advertised.

OHIO AGRICULTURAL EXPERIMENT STATION,
WOOSTER, OHIO, Jan. 17, 1905.

Mr. A. I. Root:—Regarding the nitro-culture I will say that there is undoubtedly some foundation for the expectation that these cultures would sometimes be serviceable. The principle upon which their usefulness depends is that many or most of the leguminous plants have associated with them a species of bacterium which forms the nodules which we see upon their roots, and through which the free nitrogen of the air which permeates the soil about the roots is converted into forms upon which the plants may feed. These bacteria are of different species for the different species of plants, so that the claim of the nitro-culture people, that they have a special bacterium for each different legume, has a scientific foundation for its basis.

To illustrate how these bacteria work, the soy beans which are growing at the Station, when planted on land which has never before grown soy beans, will produce almost no nodules on the roots the first season; but when planted the second season on the same land, practically every plant will carry an abundance of these nodules. The soy bean, you know, is a new plant to Ohio agriculture, and so is alfalfa. These plants may no doubt be benefited by either innoculating the seed or the soil. The same principle applies generally. Clover, however, has been grown here since the beginning of agriculture in Ohio, and we would not expect to find any soil which is not already infected with the bacteria peculiar to the clover-plant. Dr. Moore, of the Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C., claims to have developed a system of inoculating the seeds of various legumes with the bacteria peculiar to the different species, so so that nodules will be formed the first season of growth. In our experiments thus far we have not been very successful along this line, but we are still using Dr. Moore's preparation and we are also using those advertised by the nitro-culture company.

Our suggestion to the Ohio farmers would be to let the Experiment Station study this matter a year before they invest much *money* in it, especially as the genuine organisms may be procured free of cost on application to the National Department of Agriculture.

CHAS. E. THORNE.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange ladies' $60 bicycle for typewriter. Lock Box 4, East Calais, Vt.

WANTED.—To exchange incubator and homer pigeons for honey. G. ROUTZAHN, Biglerville, Pa.

WANTED.—To exchange dental outfit, consisting of chair, engine, and lathe; want bees and supplies.
WM. C. C. BALL, Plainfield, Conn.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Two Dadant uncapping-cans. Must be in good condition.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—500 queens the coming season; quote prices, state strain and delivery. Address
THE ROCKY MOUNTAIN BEE CO., Berthoud, Col.

WANTED.—Combination foot-power circular saw.
S. V. REEVES, Haddonfield, N. J.

WANTED.—To exchange queens for any thing I can use. Write.
S. F. TREGO, Swedona, Ill.

WANTED.—To exchange grade Holstein heifers, due to calf in spring, for bees.
C. A. SHULTS, Freeville, N. Y.

WANTED.—Slumgum or refuse from solar wax-extractor at 3 cts. per pound.
YOUNG'S BEE-SUPPLY HOUSE, Boonville, Mo.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—At once, the name and address of every subscriber who has been a continuous subscriber to GLEANINGS for twenty years or more. Please write on a sheet separately from any other communication.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
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WANTED.—A man that understands handling bees and the setting-out and taking care of fruit-trees and shrubbery.
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WANTED.—Two experienced beemen capable of managing an apiary. Give reference, also state salary expected. Address W. D. BUNTING. Uvalde, Texas.

WANTED.—Young man, capable and trustworthy, who understands bees and is willing to make himself generally useful.
W. R. MARTIN, Hackneys, Pa.

WANTED.—Assistant apiarist; state age, experience, and wages; May to October.
W. HICKOX, Berthoud, Col.

WANTED.—Young man, preferably one with some experience, as assistant apiarist for four to six months; 600 colonies; latest methods. State age, experience, and wages desired, all in first letter; give references; no tobacco, etc.
E. F. ATWATER, Box 37, Meridian, Idaho.

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WANTED.—Three salesmen for our new County, Township, and Railroad Surveys of the various States; counties and towns indexed; just off the press. Salesmen now at work are sending in heavy reports. A splendid opportunity for energetic men. Address
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WANTED.—Position by young man to assist in apiary; West preferred; no bad habits. I have four years' experience.
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WELLESLEY WALSH, Port Marie, Jamaica, W. I.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

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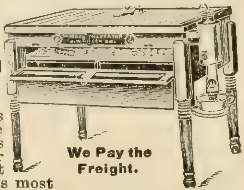
T. H. WAALE, Sara, Wash.



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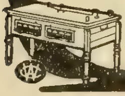

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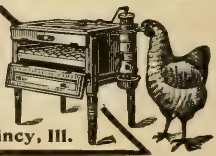

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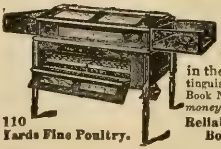

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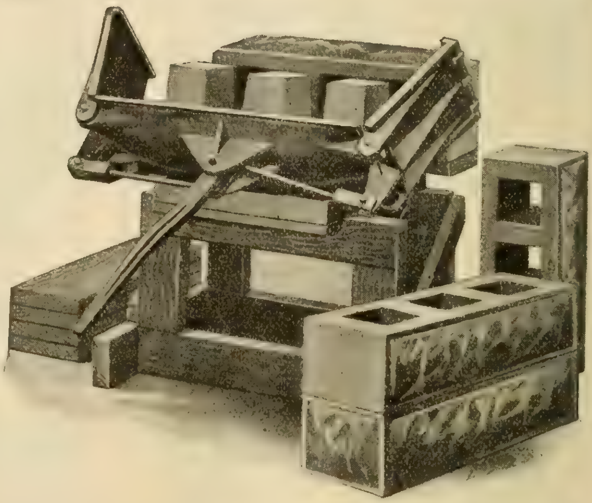

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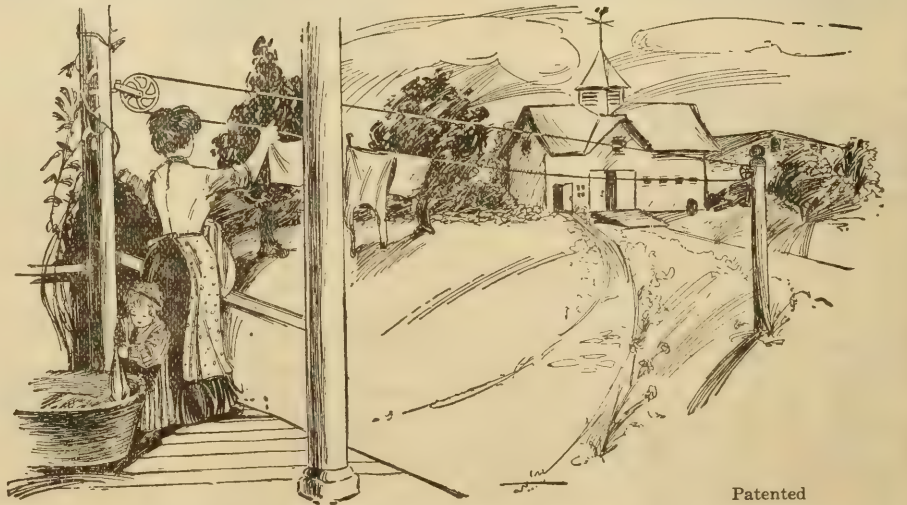

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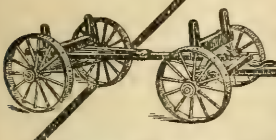

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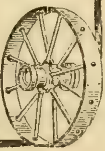

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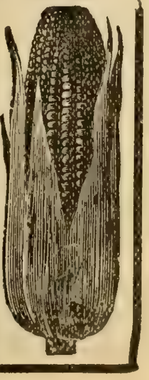

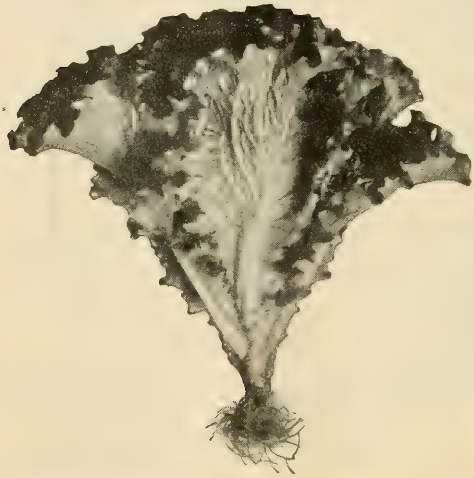

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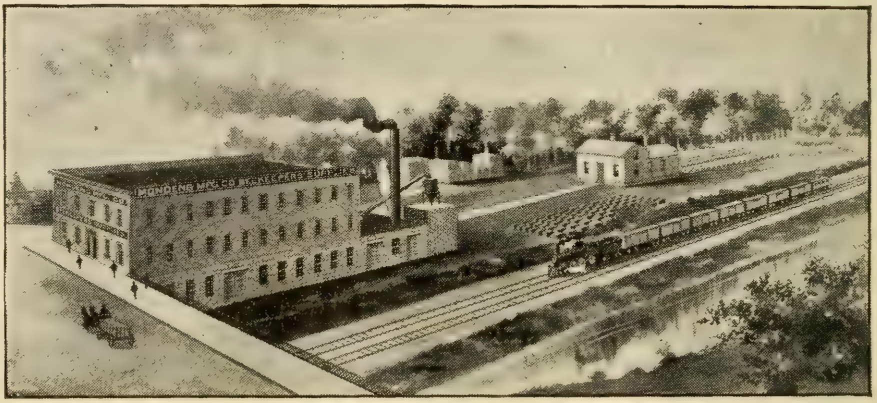
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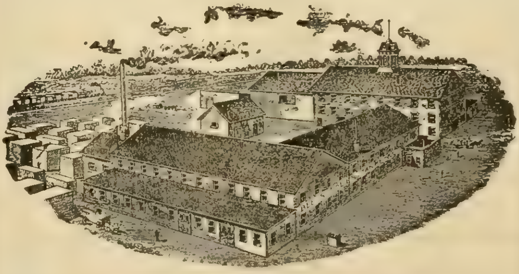

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OUR MOTTO. To have everything the bee-keeper needs, and to buy his products in return. Correspondence earnestly solicited.

The Graham Hyde Bee Company,
San Antonio, Texas.

Successor to the Hyde Bee Supply Co.

BEE SUPPLIES

The Best of Everything for the Bee-keeper

G. B. Lewis Co.'s Unequaled Hives and Sections
Dadant's Comb Foundation
Root's Smokers and Extractors

ALL AT MANUFACTURERS' PRICES
Discount on all orders received before April 1.

C. M. SCOTT & CO.
(Established 1899)
1006 E. Washington St., - Indianapolis, Ind.

FREE! **A Subscription to Bee Journal One Year** with order of $5.00 or over. Cheapest place in the United States to buy your supplies.
One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.
Wholesale and retail. Send for free list.
W. D. SOPER, Rural Route 3, JACKSON, MICH.

For Your Bee Supplies, Berry Boxes and Crates
——Send to the——
SHEBOYGAN FRUIT-BOX COMPANY, SHEBOYGAN, WIS.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

Queens, Nuclei, Colonies, Supplies!
Thirty years' experience in this business enables us to offer good service. Our prices are reasonable. Orders promptly cared for. Correspondence solicited. Prices on application. **MORGAN BROS., Vermillion, S. Dak.**

The Jennie Atchley Co., Beeville, Texas.
Dear Sir:—I received the bees all o. k., and I must say that these are the finest bees I have had for some time. I had purchased ten hives from Michigan a few weeks before ordering from you. I am sorry that I did not wait the arrival of yours, as they excel the others 100 per ct. I was greatly disappointed in the ten hives, as they are almost all dead; but the ones received from you are simply fine-working bees—as busy as can be—and I must compliment you on the way you send out your goods, as it is a credit to any firm.
East Palestine, O., May 23, 1904. GEO. L. BUXTON.

If you desire the best of bees let us have your orders. Bees by pound, nuclei, and full colonies, in small lots or carloads. We understand how to pack and ship safely, and this counts a long way. See our ad. in this journal. The above letter was unsolicited.
THE JENNIE ATCHLEY CO., Box 18, Beeville, Tex.

Diseases of Bees;
THEIR TREATMENT AND CURE.
Particulars sent free. Address
HENRY ALLEY, Wenham, Mass.

FARM PAPER ONE YEAR 10 CENTS
If you do not read it regularly you are not in the push. Sample free. Mention this paper.
FARMERS' FAMILY JOURNAL, Topeka, Kan.

Wanted! **Lovers of Good Books** to write for list of 200 titles to select from. Beautiful cloth-bound $1 books mailed 4 for $1. These story books are by the best authors, 200 to 500 pages. **The FRISBEE HONEY CO.,**
(Ref. Publishers of Gleanings.) **Box 1014, Denver, Co.**

Special Notices By Our Business Manager

A customer in Idaho sent us a large order for Hoffman frames with square edges, after having seen a discussion on that subject in these columns. We have just received a telegram from him, ordering the square edges changed to V. Possibly he had read what Mr. Louis H. Scholl says in his department, "Bee-keeping in the Southwest."

THE MEDINA CONCRETE COMPANY.

We would call special attention to the advertisement of the Medina Concrete Co., elsewhere in this issue. The personnel of this company is well known to the Root Co., and any contractor or others interested in a small portable machine that will make the stone right at the job will do well to write to them. We have seen their machine in actual operation, and can certify to the excellence of its work and the general simplicity of its construction. It makes beautiful rock-face artificial stones for building purposes, and the machine, so far as we know, is the cheapest of any thing in the market by a long way. At present artificial stone is rapidly taking the place of the natural hewn stone, because it is cheaper, and by many considered to be much more durable.

Special Notices by A. I. Root.

E. C. GREEN & SON, SUCCESSORS TO THE A. I. ROOT CO. IN THE GARDEN-SEED BUSINESS.

The above firm have gotten out one of the neatest little seed catalogs it has ever been my fortune to notice. Of course, it did not cost as much money as those sent out by the great seed-houses; but it has a condensed list of useful garden seeds selected from the best there is known. Mr. E. C. Green has been for many years connected with the Ohio Experiment Station: and his brother, Prof. W. J. Green, is still one of the old wheelhorses of that institution. With the aid of our experiment station their seed business is well up to the times; and any thing new that comes up that is really worthy of adoption is not likely to escape ther notice. The younger member of the firm, Stephen, who was with me on my trip to Cuba, is, a great part of the time, right here in our office, where I can give him such counsel in the seed business as I am able. Better send for their catalog, if you buy seeds. Address E. C. Green & Son, Medina, O.

E.C.GREEN & SON
SEEDSMEN
MEDINA OHIO
1905

PHACELIA SEEDS, ETC.

Our readers will recollect there has been quite a little discussion in regard to the above honey-plant, and several have asked where they could get the seeds. I am pleased to tell you that our old friend G. W. Park, of La Park, Lancaster Co., Pa., in his 1905 catalog offers three different kinds of phacelia at 5 cts. per packet, or all three mixed at his ridiculously low price of 3 cts., or four packets for 10 cts. Friend Park has been furnishing good flower-seeds for 3 and 5 cts. per packet for something like 35 years. I think he used to be a bee-keeper before he got to be so much of a florist. He says of phacelia, "The first two are excellent for bee-pasturage as well as being showy in the garden." If your women-folks have any interest at all in flowers and flower-seeds they had better send for his voluminous catalog.

Our old friend A. T. Cook, of Hyde Park, N. Y., is the seedsman who will not sell tobacco seed nor any thing else that, in his opinion, will not be a real substantial benefit to his customers. Better send for his catalog and look it over.

Kind Words from our Customers.

I intend to keep your paper as long as I can spare the money for it, and I hope that will be as long as I live, for it is very interesting to me, although I have only four hives of bees; but I like your Home talks, for I have been in poor health for some time, and am often in bad humor; but when I get your paper, and read your Home talks, it cools me right down and makes a different person of me for some time. A. S.
Somerset, Wis., Nov. 24.

WISHES TO BE A LIFE SUBSCRIBER.

Because I have not paid my subscription in advance is no sign I do not value it. I have taken GLEANINGS for twelve or fourteen years, and the only objection I have to it is that it does not come twice a week instead of twice a month as it does. Just put me down as a life subscriber, and I will see that I never get so far in arrears that I can not catch up. WM. L. MIDLAM.
Marion, Ohio, Sept. 11.

A KIND WORD FROM EDITOR OF THE IRISH BEE JOURNAL.

Mr. Root:—Every one who studies GLEANINGS page by page, as I do, knows that you and your father are motor enthusiasts; and that petted and pampered motor which stands at your factory door all day, and responds, like a living thing, to the compassionate skill of A. I. Root, is familiar to bee-keepers all over the globe.

It occurs to me that your father may be interested in the inclosed photograph which I have taken for him from an old print dated 1821. This steam road-carriage was, I understand, the first of its kind. It was to carry 18 passengers, and to travel from 8 to 12 miles an hour. You will see that the speed was not too great for the use of telescopes by the passengers, and the machine was adapted for mild flirtations; and that, of the "crew," the hardest worked was the blower of the horn!

Allow me to express my indebtedness to GLEANINGS—your delightful publication, so full of valuable instruction, so bright and encouraging in all its pages, and so excellent in the sympathy and fair play it extends to all.
Dromod, Ireland, Nov. 29, 1904. J. G. DIGGES.

WANTED—Every reader of this paper to try my new tomato; largest ever grown. Sample package seeds, 10c. EDWARD DAY, Florist, Peckville, Pa.

GLEANINGS ONE YEAR, and a Warranted Italian Queen, for $1.25.

In addition to above will give an extra queen for every ten subscriptions. Perhaps you can get sufficient subscribers to requeen your whole apiary.

Remember, Quirin's Queens are hardy. We have 450 swarms, nearly all are wintered on summer stands; most of them are on shallow frames at that. Above queens will be sent any time after June 15, but your orders must be sent in before April 1. If you wish, you can also send us your order for supplies; make same from any standard catalog, and address to

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, OHIO.

IT PAYS YOU WELL

To get your bees and queens from the South. All reports go to show that bees and queens shipped from the South (especially those reared by us) give larger yields of honey every year than those that are wintered in the North. Let us begin now to arrange to furnish you all the queens and bees you may need the coming season. We make a specialty of bees in carload lots. One, two, and three frame nuclei and full colonies furnished at all times. Get our prices before you buy elsewhere; we will save you time and money. We are selling agents for more than 300 colonies of bees the coming season, besides our own stock, which is complete.

Untested queens, from now until Feb. 1st, $1.00 each, or $10.00 per dozen. Tested, from $1.25 to $2.00 each. The best breeders, $3.00 each. Should you wish to buy bees and locate in South Texas, write us. We will fit you out in what you want. Our 1905 catalog describes the six different races of bees we breed. Write for it.

THE BEE & HONEY CO., W. Atchley, Prop., Box 79, Beeville, Bee Co., Tex.

GOOD QUEENS

can always be had by sending your orders to us. Untested queens, $1.00 each; $4.25 for six, or $9.00 per doz. Tested, $1.50 each. Nuclei and bees by the pound a specialty. Write for prices. Wholesale orders solicited. We fill wire orders from 100 to 300 queens to responsible parties with 10 hours' notice. Safe arrival and satisfaction guaranteed. We have Carniolan, Holy Lands, Cyprians, Goldens, and the old-fashioned three-band Italians. All reared in separate fields 10 to 20 miles apart. All the Holy Lands and Cyprians in this part of the country are from our strains and our importations. Don't fail to consider quality and our thirty years' experience. Best breeders, $5.00 each.

The Jennie Atchley Co.,

Box 18, Beeville, Bee Co., Texas.

Leather-colored Queens

Extra good ones, carefully reared. June, $1.00; six, $5.00. Later, 75c; six, $4.00. Liberal reduction for large orders. Absolute satisfaction guaranteed.

S. F. TREGO, Swedona, Ill.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS.

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. Circular on application.

W. H. LAWS, Beeville, Texas.

Try Me

and see if queens raised by a little boy, 14 years old, are not as good as any. I have been brought up in the queen-rearing yards. Untested, $1.00 each; $4.25 for six; $9.00 per dozen. Safe arrival and satisfaction guaranteed. Money-order office Oakville, Texas.

IVES ATCHLEY, LAPARA, LIVE OAKS CO., TEXAS.

GEORGIA QUEENS.

Hall's Superior Golden Strain, Hall's Leather-colored Strain, Hall's Gray Carniolans,

mated to the best selected DRONES; bred with the greatest care, by an old experienced hand, from imported and homebred queens. If you are looking for a place to get first-class standard-bred queens, give us a trial order. We are booking orders now—first come first served. List will be ready soon.

T. S HALL, Jasper, Pickins Co., Ga.

Queens at the Old Stand

for 1905. 15 years' experience. Orders booked now. Golden stock.

J. B. Case, Port Orange, Fla.

$1-LOOK-$1

Send a postoffice money-order for $1.00 to the undersigned, and I will have GLEANINGS IN BEE CULTURE, one of the best bee journals in the world, sent to your address for one year, either new or renewal of subscription, and send as a premium a nice Italian queen well worth a dollar. These queens are reared from The A. I. Root Company's famous long-tongue strain and the best imported queens. I will book orders now and GLEANINGS will start at once, and I will send the queens in their turn. I will commence to supply these queens about the 15th of April. My bees have never had any disease whatever among them, and I have more than 10 years' experience in queen-raising. :: :: ::

W. T. CRAWFORD, Hineston, Rapides Parish, La.

We Carry a Full Line of

Bee-keepers' Supplies

AT SYRACUSE, NEW YORK.

THE A. I. ROOT COMPANY.

WANTED!

Bee-keepers To Know

That we offer the following discounts on early orders as follows: : : : :

October---6 per cent
November---5 per cent
December---4 per cent
January---3 per cent
February---2 per cent

This applies only to Hives, Sections, Smokers, etc.

We buy comb and extracted honey; if you have any to offer, state kind, quantity, and lowest price delivered here.

We also have a large supply of honey always on hand, in cans and barrels. Should you be in need of any, let us quote you prices.

How About a New Incubator this Fall?

We have them on hand, and can ship promptly; send for catalog if interested.

GRIGGS BROS.,
523 Monroe St. TOLEDO, O.

DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

Root's Goods
AT
Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. **CATALOG FREE.**

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,

AT

SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. Order now and secure our 2 per cent February Discount for Cash Order. Catalog free. Correspondence solicited. . . .

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

SPECIAL PRICES for February orders. Give me a list of goods wanted, and I will quote you prices.

SATISFACTION.

The kind that comes by using the best hives, the best sections, the best of everything (Root's Goods).

GEO. A. HUMMER,
BRAZELIA, MISS.

Our Facilities

Baltimore & Ohio Railroad—Washington and Metropolitan Branches.

Chesapeake & Ohio Railroad—Washington and Gordonsville Division.

Pennsylvania System—Baltimore and Potomac Railroad.

Southern Railway—Main Line.

Washington Southern Railroad.

Randall's Potomac River—Tri-weekly service between Washington and Parkham's Point, Va.; Wirt's Wharf, Va. (daily) Glymont, Md.

Norfolk & Washington Steamship Co.—Daily service between Washington and Norfolk; connects also with Old Dominion Line (Trans-Atlantic) and Clyde Line (coastwise and West Indian.)

Potomac River Line—Bi-weekly service between Washington and Baltimore.

Mt. Vernon & Marshall Hall Steamship Co.—Daily service (passengers only) between Washington and Mt. Vernon, Va.; ferry to Alexandria, Va.

Wash., Alexandria & Mt. Vernon Electric Line.

Adams Express Company.
United States Express Company.
Southern Express Company.

The A. I. ROOT Co.,
1100 Maryland Avenue, S. W.
WASHINGTON, D. C.

A Solid Foundation Means a Solid House.

Dadant's Foundation

Means Solid, Straight, Well-built Combs.

110,000 Pounds

Used by Bee-keepers in 1904.

Satisfaction Guaranteed.
Bee Supplies of all Kinds.
Beeswax Wanted at all Times.

Send for our 1905 Catalog.

DADANT & SONS, Hamilton, Ill.

Volume XXXIII. FEBRUARY 15, 1905 Number 4

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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

Special Bargains

IN

Hives, Supers & Other Supplies

DURING THE

Next 60 Days

SEND US A LIST OF GOODS WANTED, GIVING QUANTITIES.

BEESWAX WANTED.

A. G. Woodman Co.
Grand Rapids, Mich.

TRAVERSE CITY
MANISTEE
FREMONT
MUSKEGON
GRAND RAPIDS
MICHIGAN
SAGINAW
LANSING
DETROIT
BATTLE CREEK

In the Heart of Michigan.

Within a hundred miles of me are over ¾ of the bee-keepers of Michigan. I am on the Pere Marquette R. R., which completely covers this region. Root's Goods, Factory Prices, Prompt Service, Low Freight.

Send for Catalog

George E. Hilton, Fremont, Michigan,

The Michigan bee-keeper is the man we are interested in, whether he has one swarm or five hundred. If you are that man, we are talking to you.

The goods we sell are made in Ohio. You live in Michigan.

The point is this: We cut out the distance, and bring your goods home to you--and they are Root's Goods too.

Just now we are interested in getting our catalog into the hands of every Michigan bee-keeper. It is YOURS for the asking.

Your order to us, small or large, means prompt service and Root's Goods.

We are agents for the Danz. Hive--the comb-honey hive.

Beeswax wanted.

Write to

M. H. HUNT & SON,
BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

COMPLETE STOCK FOR 1905 NOW ON HAND.

Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is. there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—The market is decidedly dull on comb honey, and very little moving, with plentiful supply. We quote fancy white at 14; No. 1, 13; amber, 11; dark, 9@10. Extracted honey is in fair demand, and prices remain about the same. Beeswax steady, and in good demand at 29. HILDRETH & SEGELKEN,
Feb. 8. 265-267 Greenwich St., New York.

TORONTO.—The demand for honey is looking up a little at present; prices, however, remain the same. Many of the grocers and small dealers are getting in a fresh supply of honey in glass jars, owing, no doubt, to the fact that nearly everybody has a cold or cough. Honey being used as a remedy for such troubles, the demand for it in small packages is increased. Ill wind that blows nobody good. E. GRAINGER & Co.,
Feb. 8. Toronto, Can.

CHICAGO.—The trade in honey is still below the normal in value, with prices unchanged, except that the pressure on the part of holders to realize is more urgent. Fancy white comb, 12½@13; No. 1, 12; off grades, 10@11. Extracted white, 6@7, according to flavor, quality, and package—anything off is lower; amber grades, 5½@6½. Beeswax, 30, if clean and good color.
R. A. BURNETT & Co.,
Feb. 8. 199 South Water St., Chicago, Ill.

CINCINNATI.—Comb honey is now coming in more freely, and prices, if anything, have moderated a little. The sales made and prices obtained were for No. 1 fancy water-white comb, 12@13½; single cases, 14. Extracted is sold as follows: White clover, in barrels, 6½; in cans, 7½@8. Amber, in barrels, 5¼@5½; in cans, 6@6½. Beeswax, 27. C. H. W. WEBER,
Feb. 7. 2146-8 Central Ave., Cincinnati, O.

ST. LOUIS.—This market has not undergone any change since our last. It is as dull as ever. Quotations are nominal, as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11; broken or leaking honey, 7@9. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5½@6; Southern in barrels, 5@5½. Beeswax, prime, 28½ per lb. R. HARTMANN & Co.,
Feb. 8. 14 So. Second St., St. Louis, Mo.

TOLEDO.—The market on comb honey has weakened some since last quotations, and the sale is very slow. Fancy comb is selling at 12½@13; No. 1, 11½@12½, with no demand for amber. Extracted, in barrels, 6@6½; in cans, 7½@8½. Beeswax, 25@28. GRIGGS BROS.
Feb. 7. Toledo, Ohio.

PHILADELPHIA.—The market of all grades of comb honey continues rather weak and trading light, with a good supply on hand. We quote fancy white, 15@16; No. 1, 13@14; amber, 11@12. Extracted, white, 7@8; amber, 6@7. Beeswax, 28. We are producers of honey—do not handle on commission. WM. A. SELSER,
Feb. 8. 10 Vine St., Philadelphia, Pa.

BOSTON.—The sales of honey still continue light, principally on account of the extremely cold weather which we are having. On account of the large stocks on hand, prices that we quoted are shaded in round lots. We quote as follows: Fancy white, 15@16; A No. 1, 15; No. 1, 14. Extracted, 6@7, according to quality.
BLAKE, SCOTT & LEE,
Feb. 8. 31-33 Commercial St., Boston, Mass.

KANSAS CITY.—The demand for honey is still very limited, and is far exceeded by the supply—comb as well as extracted moving very slowly. We quote fancy white comb, 24-section cases, selling at $2.25, and the best white extracted at 6½@7. Beeswax, 28@30.
C. C. CLEMONS & Co.,
Feb. 7. Kansas City, Mo.

SCHENECTADY.—The continuous cold weather has interferred with the shipping of honey, much of the stock sent out becoming frosted and combs cracked. The local demand has also been very limited. We look for better conditions with more moderate weather. Stock of extracted well cleaned up.
CHAS. MCCULLOCH,
Feb. 7. Schenectady, N. Y.

DENVER.—The local honey market continues to be dull. Sales are few and far between. No. 1 white comb, $2.40@$2.50 per case; No. 1 light amber, $2.20@$2.30; No. 2, $2.00@$2.25. Extracted honey, per pound, 6½@7½c. We pay 25c per per pound for clean yellow wax delivered here.
THE COLORADO HONEY-PRODUCERS' ASS'N,
Feb. 20. Denver, Colo.

FOR SALE.—1000 lbs. white extracted honey in 60-lb. cans at 7¼ cts. W. D. SOPER, Jackson, Mich.

FOR SALE.—6000 lbs. clover and basswood honey in 60-lb. cans. C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—1000 pounds white comb honey at 13 cts. Speak quick.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.
C. B. HOWARD, Romulus, N. Y.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

GOOD DISCOUNTS ON EARLY ORDERS
COMPLETE STOCK OF BEE SUPPLIES--LEWIS CO.'S AT FACTORY PRICES
MUTH SPECIAL HIVE THE BEST DOVE TAIL MADE
SEND FOR CATALOG.
WE ARE ALWAYS IN THE MARKET TO BUY HONEY--SUBMIT PRICE.
THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Well-ripened extracted honey to sell again. Give low price and full particulars in first letter.
D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

Convention Notices.

MICHIGAN STATE CONVENTION AT GRAND RAPIDS, FEBRUARY 23, 24; NOTE THE PRIZES OFFERED.

The Michigan State Bee-keepers' Association will hold its annual convention Feb. 23d and 24th, at the Eagle Hotel, in Grand Rapids. The Michigan dairymen will hold their convention at the same time and place, and the bee-keepers can take advantage of the reduced rates given the dairymen. When buying your ticket ask for a certificate on account of the meeting of the State Dairymen's meeting. The secretary of the dairymen's association will sign this certificate, which will enable the holder to buy a return ticket at one-third fare. This is done with the knowledge and consent of the railroads. Several associations often meet in this way, and the secretary of one association signs all of the certificates. The Eagle Hotel is located at 65 Market St., corner of Louis St. It will give a rate of $1.50 a day, and furnish a room free for holding the convention. Grand Rapids is located in a good honey-producing district, easily accessible from the northern, southern, and middle parts of the State, and a large crowd ought to present. The editors of the *American Bee Journal* and of *Gleanings* have promised to come if it is possible. Editor of *Review* will be there.

PRIZES ON HONEY AT COMING MICHIGAN CONVENTION.

As an encouragement to attend the coming State convention of bee-keepers, at Grand Rapids, and, at the same time, furnish some valuable object-lessons to some of the members, the following prizes have been offered:

For the best ten pounds of comb honey, quality and manner of putting up for market to be considered, A. G. Woodman, of Grand Rapids, representing the G. B. Lewis Co., of Watertown, Wis., will give $3.00 worth of supplies; for the second-best lot, a Bingham brass smoke-engine worth $1.75. Mr. Woodman also offers similar prizes for the best ten pounds of extracted honey, quality and manner of putting up for market to be considered.

M. H. Hunt & Son, Bell Branch, Mich., offer $3.00 worth of supplies for the best ten pounds of extracted honey, quality and manner of putting up for market to be considered; a Jumbo Corneil brass smoker as a second prize, and a Bingham honey-knife as a third prize.

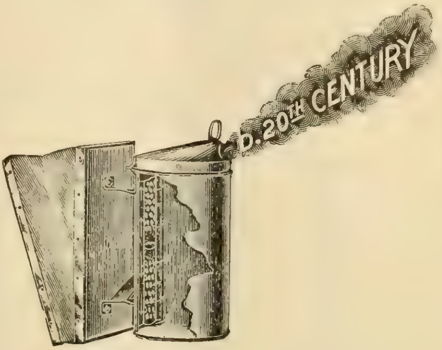
The A. I. Root Company offers a complete Danzenbaker hive, nailed and painted, ready for use, value $3.10, for the best ten sections of honey produced in a Danzenbaker hive; for the second-best lot, a copy of the A B C of Bee Culture, worth $1.20; for the third-best, one year's subscription to *Gleanings*, worth $1.00.

In addition to the above, the *Bee-keepers' Review* will give a year's subscription to the *Review* to every man who wins any of the other prizes.

It will be seen that a bee-keeper with a nice case of comb honey, or ten pounds of fine extracted, might, considering the reduced rates on the railroad, come 100 miles and receive prizes enough to pay all of his expenses. Come, and bring your honey. If you don't bring it you may be chagrined to see a poorer lot than yours take first prize.

It may be of interest also to know that the National Biscuit Company will make a display of their goods that are made with honey.

DANZENBAKER
...$1.00 Smoker...
Guaranteed to suit or the dollar back.



Buy the D 20th Century Smoker, it is the best. The construction is so simple and complete, it is **sure to please, can not clog**, smokes three to five hours at one filling. $1.00 each; three, $2.50, by express or with other goods; by mail, each, 25c for postage.

F. Danzenbaker,
Miami, - - Florida.

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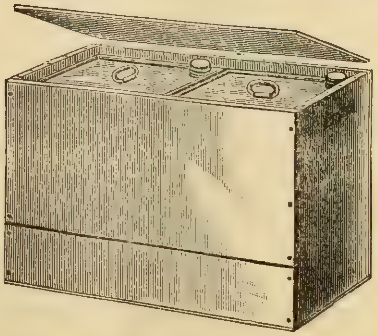

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SPECIAL TEXAS SIZES.

3-lb. cans, ... 4 3/16 diameter, ... 4⅞ high.
6-lb. pails, ... 5 1/32 " .... 6¼ "
12-lb. " .... 6 3/16 " .... 8¾ "

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American Can Co.,
NEW YORK. CHICAGO. SAN FRANCISCO.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., Medina, Ohio.

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Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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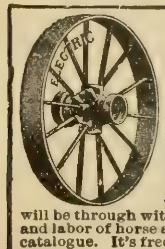

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brings big face comfort and makes shaving easy, if invested in the famous

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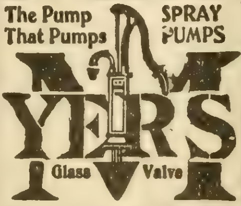

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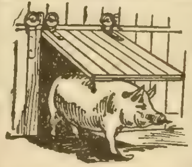

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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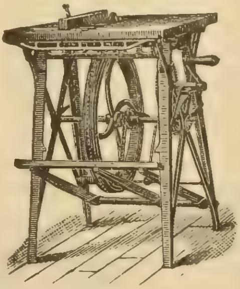
Ashland, Ohio.



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This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc. **Machines on Trial.** Send for illustrated catalog and prices. Address

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really is; if you only knew how easily it can be put on and how long it lasts; if you only knew what a good all-round roof it is, you would save money by using it for every building on the place. Weather proof, wear proof, contains no tar, slate color, any one can lay it. Let us prove to you what the genuine Paroid Roofing will do.

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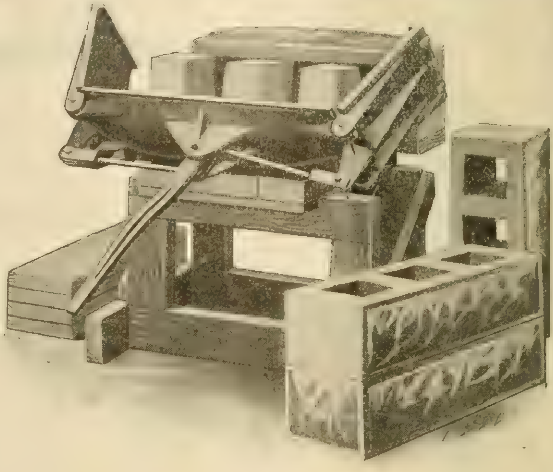

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is constantly gaining recognition as a building material. The most popular form is Hollow-block Construction.

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We are operating a successful building-block plant in Medina, opposite The A. I. Root Co. *Write us for prices of machine, etc.*

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OF UNUSUAL MERIT.

Klondike Lettuce, hardy as rye; grows in winter and comes in market a month ahead of all others.

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To get acquainted we will mail the above and a trial subscription to *Seed-time and Harvest*, all for one dime. Or send stamp for any one, or card for catalog of many other extra good things.

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TESTED SEEDS!

We have a limited amount of home-grown Premium Flat Dutch Cabbage seed, testing 98 per cent vitality, which we will send postpaid for 15 cents per ounce.

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Eight - Hundred - Entries

at the World's Fair is enough to prove the popularity of the White Wyandotte. They are not alone a fancier's fowl, but for all-the-year-round profit they are unexcelled. Our stock won 12 prizes (every first) on 14 entries at Erie, Pa., Dec., 1904. Stock and eggs at reasonable prices. Can also furnish W. Plymouth Rocks of quality.

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10,000 COLONIES

in the aggregate are owned by a dozen men who have contributed articles that are to appear in the *Bee-keepers' Review* for this year. No one of these men has less than 400 colonies, and one has 1700! These men are widely scattered, some living in California, some in Texas, others in Colorado, while Mississippi, Cuba, Vermont, New York, and Minnesota have men on the list. These men have kept bees in large numbers. They have succeeded. They have made money. They can point the way for others. They will tell how many colonies in the home apiary will justify the starting of an out-apiary; how far apart out-apiaries ought to be located; how locations shall be selected; the best methods of traveling from apiary to apiary; how hives and increase shall be secured; what kind of honey shall be produced; how to solve the swarming problem; what are the greatest obstacles, and how to overcome them, etc. The publication of these articles was begun in the January *Review*, and will be continued through the year, one or more appearing each month. If you are making a business of bee-keeping, you can not spend $1.00 to greater profit than in sending it for the *Review* for 1905.

W. Z. Hutchinson, Flint, Mich.

$1==100 MAGAZINES EACH YEAR==$1

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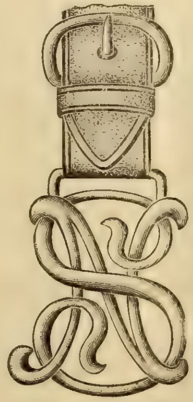
Better Wire, Thicker Galvanizing,
Simpler construction, make Page fences best investments. Ask for photo showing fence after 19 years' use.
PAGE WOVEN WIRE FENCE CO. Box S, Adrian, Mich.

Sow Figwort Honey = plant

for your bees. I have it—15 cts. per packet.
W. O. HERSHEY, Landesville, Lancaster Co., Pa.



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BEAUX ARTS CO.
61. W. 27th St. New York, N. Y.

PEACH and other fruit trees at wholesale prices. Circular free.
E. S. Johnston, Box 43, Stockley, Del.

Here's what they say about our new catalog

If you wish to be abreast of the times send for one free on application.

Higginsville, Mo., Dec. 30, 1904.
G. B. Lewis Co., Watertown, Wis.

Gentlemen.—We have this day received your retail, wholesale, and jobbers' price-list, also catalog. Permit us to congratulate you on your catalog. We do not hesitate to say it is the most elegant bee-catalog ever published. We thank you for all above items of interest.

Yours truly, LEAHY MFG. CO.

Kenton, Ohio, Jan. 5, 1905.
G. B. Lewis Co., Watertown, Wis.

Gentlemen:—Your catalog duly received and we wish to thank you for same. It certainly is the most attractive and the easiest to understand of any that we have ever seen, and we think it will draw trade from the fact that a bee-keeper can so readily find what he wants.

NORRIS & ANSPACH.

Hastings, Neb., Jan. 16, 1905.
G. B. Lewis Co., Watertown, Wis.

Gentlemen:—Your catalog is certainly splendid, and a credit to your firm. Wishing you a prosperous year, I beg to remain, Respectfully, CHAS. WINKLER.

Cincinnati, Ohio, Dec. 30, 1904.
G. B. Lewis Co., Watertown, Wis.

Gentlemen:—We are in receipt of your new catalog, and beg to say it is fine and excellent.

Yours truly, FRED W. MUTH CO.
Fred W. Muth, Pres.

Havana, Cuba, Jan. 4, 1905.
G. B. Lewis Co., Watertown, Wis.

Gentlemen:—We have also received a sample of your new catalog that you have published, on which we wish to extend our congratulations. It is undoubtedly far ahead of any catalog published of its kind. We would be greatly obliged to you to have you send us 100 or 200 of these as we think our English-speaking trade would appreciate them. Yours truly,

C. B. STEVENS & CO.

San Antonio, Texas, Jan. 2, 1905.
G. B. Lewis Co., Watertown, Wis.

Gentlemen:—Your catalog is fine.

SOUTHWESTERN BEE CO.

BEE PRANKS

We take pleasure in presenting to the public the first edition of our little book entitled "Bee Pranks." This pamphlet is compiled from clippings taken from newspapers published all over the United States, and therefore gives, as nearly as possible, complete and authentic daily record of common, uncommon, strange, and unique happenings in the busy life of the bee during the year just passed.

The chief value we claim for the book is the undisputed fact that nowhere else will or can be found as varied a collection of interesting events in the life of this little insect; anecdotes, humorous as well as serious, mingled with practical information.

In this modern age there are few events of importance which are not chronicled in the newspapers; they seldom appear anywhere, else and are read only in that section of the county local to the paper in which they appear.

At no little expense have we been able to gather together news items pertaining to the bee which have appeared in almost any and every paper published far and wide. You will agree with us many are wonderful, some sad, some humorous, but all interesting. They are not fiction, but chronicled facts.

We shall be pleased to send this book postpaid to any address for 12 cts. in stamps, or WE WILL GIVE IT FREE for the names and addresses of five bee-keepers in your vicinity. THEY ARE GOING FAST, and this offer holds good only while they last.

G. B. LEWIS COMPANY

Manufacturers of Bee-Keepers' Supplies

WATERTOWN - - WISCONSIN

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.

$1.00 per Year Medina, Ohio

Vol. XXXIII. FEB. 15, 1905. No. 4

Stray Straws

By Dr. C. C. Miller.

Nearly every bee-keeper has some one queen that is clear ahead of all the rest. Breed from her exclusively. No matter if the editor did say that, page 128, it's worth saying again.

It appears that there is such a thing as control of fishing-grounds on public waters. There ought to be no greater difficulty as to control of bee-pasturage if bee-keepers should ever so desire.

At Brussels, in the Botanic Garden, plants of toad flax protected by gauze from visits of bees, etc., did not have a single flower fecundated, while others side by side, freely exposed, produced seed in abundance.

Comb-building, I always supposed, was at its best in hottest weather. Prof. Brunner, Argentine Republic, says the best temperature is between 64 and 74 degrees. Above 108 or below 61, little or no wax is secreted.

I feel sorry for you chaps who live 'way down south. You can never experience the feeling of satisfaction one has in sitting in one's shirt-sleeves in a warm comfortable home while outside the mercury is shivering around in the region of 10 to 20 degrees below zero.

When screws are put into hot tallow, says J. A. Green, page 118, there will be a lively ebullition caused by the escape of the air in the wood. When boiling foundation splints in beeswax the escaping vapor appears to be several times the bulk of the splints, and hardly a fourth of the bulk could be air. Isn't it the moisture?

Bee-stings are having a boom in some of the foreign journals as an antipyretic. It is claimed that a few stings suffice to cure intermittent fevers, even the most pernicious, more surely and promptly than quinine. I wonder how much there's in it. [Huber and I are making some experiments that are somewhat interesting. He goes into the bee-cellar and makes the bees sting him; then he turns them loose on me. Some time we will tell our readers something about it.—Ed.]

Prof. Brunner, of Argentine Republic, South America, tells, in *Apiculteur*, about working for wax. As fast as the bees build combs and fill them, he melts them and feeds back the honey to build more, no matter how much they gather from the fields. It takes 6.8 pounds of honey to make one of wax, and the wax sells for a third more than its equivalent of honey. That will do with his inferior honey at less than 3 cents a pound; but at 30 cents a pound for wax it wouldn't pay, so long as the honey can be sold at 5 cents a pound.

The idea given by Doolittle, page 133, that, when a frame of sealed honey is put in the middle of the brood-nest every week or ten days, the extra heat caused by removal of the honey guarantees against chilled brood is a new one. I'd like to know just how much there's in it. If a frame of honey be thrust into the middle of a brood-nest, there being just enough bees to cover the four frames of brood that are present, would there be no danger of chilling in a cold spell? How many frames of brood should there be, Bro. Doolittle, when you insert the first frame of honey?

Punics were not as bad here, Mr. Editor, as in Medina, page 135. The workers were half-bloods (virgin queens were mailed from England), and were champions at gluing and stinging, just as you say, but they were hustlers. They wouldn't do for comb honey, however, for they were the worst ever at making greasy-looking, watery combs. [We had the pure bloods, and they succeeded in driving both A. I. R. and myself away from them. They were but little if any better than the ordinary Cyprians. But one swallow does not make a summer, and perhaps it is not fair to conclude that all Punics are cross, simply because the progeny of the one queen we had was so.—ED.]

NOT OFTEN do I take the same pleasure in reading two controversial articles that I did in reading the Miller-Phillips controversy, page 123. The abiding good nature and kindliness of spirit, with the keen arguments, make a delightful combination. Arthur C. is an iconoclast, and we need him. It's a good thing to take our bearings occasionally, even if we are on the right track. To change the figure, we're all too much given to following tradition. But, Arthur, my good fellow, I give you due notice that I'm going to stick to the tradition of the powers of scent in bees as handed down by the fathers—if I can. [This question is an interesting one, and I should be glad to hear from others of our subscribers who have had experience.—ED.]

SOME TIME AGO I said in a Straw, "Well, well! it seems like old times to have A. I. Root writing about bees again." I've no doubt that voiced the pleasurable sentiments of many a one, and the muse has inspired our good friend of the Golden State to give expression to the same sentiment in better form in the accompanying verse:

Uncle Amos has come back,
Writing bee-talk and all that,
Just the same as ever;
Uncle, he, to most of us—
Wasn't it his talk and fuss
Gave us first the fever?

Langstroth will as "Father" stand
To the bee-craft of the land—
We forget him never;
But there's no man can or will,
As an "Uncle," fill the bill,
Only Amos, ever.

Can't you hear him just exclaim
At a handle to his name,
Not for him a title!
Well, now, "Uncle" isn't new;
But it suits him, and is due,
Though it's poor requital.

Uncle Amos' heart is gold,
And his kindness can't be told—
All men are his brothers;
Loving, serving all his days,
Can we give him better praise
Than "he lives for others"?

Humble though our lot may be,
Yet it gives to you and me
Choice in fullest measure,
Of the good, the true, the pure,
Of the virtues that endure
And make heavenly treasure.

Santa Rosa, Cal. F. D. WEBLEY.

"NAKED COLONIES," that is, four or more pounds of bees with a queen, but without combs, are frequently advertised in European journals, to be delivered middle of September and after, at about 25 cents a pound. [For near-by points it might be well for some of our queen-breeders to arrange to sell bees on a similar plan. We sold bees by the pound—that is, little bunches of bees, without any comb. For distances not exceeding 200 miles the results were fairly satisfactory. So many bees arrived dead for greater distances, making it necessary to make replacement once and sometimes even twice, we gave up the business in disgust. A package to hold "naked colonies" will not weigh anything like a package large enough to carry the same number of bees on combs of honey. For example, one pound of bees on a comb in the lightest kind of package weighs about 4 pounds. The same number of bees in a wire-cloth cage with blocks of Good candy (sugar and honey mixed into a stiff dough) weigh only about 1½ lbs. For short distances the shipment of combless bees works very satisfactorily, and saves the heavy express charges; for bees have to go at a rate and a half when sent as express matter.—ED.]

NO WONDER, Mr. Editor, you and Mr. Doolittle don't entirely agree about outdoor feeding. He's talking about feeding needy colonies in spring, while you're not, pp. 120, 132. Years ago I did much open-air feeding; and while I've given it up because I don't want to feed other people's bees, I don't find the objections some do. I don't believe sugar syrup will start robbing any more than nectar of flowers. That the strong colonies get the lion's share is rather an advantage. Except for the possible stimulus, I'd just as soon the little fellows wouldn't get a drop. They can have combs from the big ones. The greatest danger is feeding in bad weather. You may think I'm radical about robbing, but remember I'm talking about what I know after wholesale experience feeding sugar outdoors. The greenest tyro can't start robbing with outdoor sugar-feeding so long as he keeps it up. Same with nectar. [I do not think you are radical at all; but the greenest tyro should know enough to feed the syrup thin, but not so thin as to sour, and give them enough to keep them fairly busy. The bees after a while seem to learn the times when the feed is put out and about when it will be gone. Another thing about it is, there are always a few stray robbers that will follow the smoker about when there is nothing to be gathered. This outdoor feeding draws them away and gives one a chance to open the hives—something he can not do with any degree of convenience during a dearth of honey when no outdoor feed is given. Yes, sir; we consider this way of starting up an artificial honey-flow a great boon to the queen-breeder. Every one who has had much to do with raising queens knows that, during a dearth of honey, bees will be inclined to destroy cells, refuse to start others, virgins will be missing, and the bees are otherwise ill-tempered and out of sorts; and, presto! what a change takes place when feeding outdoors begins! We have bought up now all the bees in our vicinity; and if any one puts any down here we will try to make arrangements so they will pay for what their bees take. During an average dearth of honey colonies would lose in stores; if they gain, as well as hold their own, then these "outsiders" ought to pay pro rata for what they get, and most of them would be glad to do so. Perhaps some would think outdoor feeding is of no benefit except to the queen-breeder. If there are no neighbors' bees it is altogether the easiest and cheapest way to do it; and I suspect that syrup fed very thin, and carried through the air a distance, is more thoroughly ripened than the same amount of sweet of the same dilution given to the bees in the hive direct. This should be said, however, that there is possibly and probably a loss in bees owing to the hard labor of struggling against each other in their mad haste gathering the syrup and carrying it home. Just how much this may be I do not know. – ED.]

BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL. COLLEGE STATION TEXAS

The bees at home began this season in December on mistletoe, which is very abundant.

* * *

The weather was warm this winter, and bees flew nearly every day up to Jan. 10, when a cold spell came, lasting several days.

* * *

Bulk comb, extracted, and section honey are the three kinds produced in Texas, the most of it bulk comb honey with the greatest profit.

* * *

Heavy rains have fallen, and prospects are good. The up-to-the-times bee-keeper is making ready for a honey-flow while the other kind still has plenty of time.

* * *

What a difference! Snow and ice here in the North; at home, in the South, my bees are working busily on mistletoe, which is still in bloom, and agherites (*Berberis trifoliatum*), one of our best early bloomers, is coming in to stimulate early brood-rearing.

* * *

Texas has eight bee-keepers' associations, and there is something doing. They are now pulling hard before the legislature now in session, for a pure honey-law, and for an amendment to the foul-brood law, providing for an appropriation of $1000 annually for carrying out the work.

* * *

The Washington State Bee-keepers' Association, according to its convention report in the *American Bee Journal*, has appointed a committee to seek the co-operation of the bee-keepers' associations of the States of Oregon, Idaho, and California, such committee to make a grand display of honey, bees, and by-products at the Lewis and Clark Exposition, to prepare literature and circulate it, and see to it that a booth is arranged at which the public shall be feasted on honey, hot waffles, etc. There is nothing like organized effort, push, and advertising.

* * *

The botanical name of "catsclaw" is *Acacia greggii*, A. Gray; and of "guajilla," *Acacia berlandieri*, Beuth. These names have been asked for recently. They are two of our leading honey-yielders of Southwest Texas, and are both shrubs or shrubby trees belonging to the acacia.

* * *

Three times during the fall and this winter have I been guilty of letting the manager of my Texas apiaries jog my memory about ordering our necessary supplies early; and when he wrote me that I'd better order them right away if I expected him to produce any honey for me, they were ordered. Of course, being away from home and other matters accounted for the delay. A card now tells me that the supplies were just received; heavy rains had set in, and nothing to do but to fix them up for the honey-flow.

* * *

In consequence of an editorial by the editor of GLEANINGS in the Jan. 1st issue, relative to Southwest Texas as a bee country, many letters asking for more information have come to me, and I should like to say that it has been impossible for me to answer them properly on account of my school work and other duties. Some time soon I shall prepare for this department such information as has been asked for, together with a map of Southwest Texas showing the location of counties, cities, and towns, and the railroads in this section. This will then serve as an answer to all of the letters.

* * *

How would these be for get-rich-quick schemes? I have had these in mind for several years, but could not carry them out myself, so here they are:

One is, to keep bees in Texas for the early honey-flows, which last until June, then move to Colorado and catch the alfalfa flow there. The bees are to be returned to Texas to winter them for early flows the following season.

Another is, to run bees in Texas during the summer, and then spend the winter with bees in Cuba while the honey season is on; come back to this country at the end of the season there, and work the Texas bees again next summer.

By following one method the bee-keeper could keep cool all the time, and by the other he could keep warm year in and year out. This would be working bees the year round provided the bees wouldn't work the bee-keeper.

* * *

MOVING BEES SHORT DISTANCES.

To move an apiary of bees only a few hundred rods has been a serious problem with us during some of our winters. The bees flying more or less all the time will return to the old location when moved. Several experiments in moving bees to different parts of the apiary, and distances from a few yards to several hundred rods, were quite successful early last spring. From hives moved with open entrances the bees returned badly. Others were closed with wire cloth, and some with the entrances stuffed with moss or green grass, early in the morning, and moved later in the day. The next day, about 11 A. M., the entrances were opened and the bees given a smoking on the new stands. Hardly any bees returned. Of the two I prefer the moss or grass for closing the entrances, especially at outyards; not so much danger of bees trying to crowd out as with screens, and less liability of suffocation, as the bees can gnaw out. I tried this several times, and was well pleased. I moved 30 colonies about a hundred yards in this way in September two years ago. I did not get back there until *seven* months later, the following March, and found all good and well. They released themselves.

❧

SPECIALTY VS. MIXED BEE-KEEPING.

In the January *Review* L. Stachelhausen gives us an article full of good points on bee-keeping as a specialty, in which he tells us that he did not make any money until he gave up every thing else. But there are, evidently, two sides to the question, and F. Strohschein defends his side well. He mixes bee-keeping with farming. Specialization brings more profit in other lines, and so it does in bee-keeping. Every thing is done on a large scale with short-cut methods, which result in cheaper production; therefore, if the locality is favorable, and the honey crop can be depended upon with certainty, the bee-keeper should specialize by all means.

But there is the other side of the question. Not everybody can be a specialist. Some bee-men have not the ability to expand, and the locality may not allow it. It may already be stocked, or the honey-flow may be uncertain. In that case it is best to mix something with bee-keeping, so that, if one fails, the other may be relied upon. If rightly managed, such bee-keeping will bring just as good returns as the other.

❧

EXTRACTING HONEY BEFORE IT IS SEALED.

At the St. Louis convention this old question came up, to which General Manager France protested most emphatically. He gets his honey ripened by leaving it on the hives until it is all sealed, even if it takes all season. That is good practice, and just what I have often preached; but does it always work? Locality! In Texas, much of our honey is very thick when gathered, and little wax is secreted, so that often the bees do not get the combs sealed. The honey is soon ripe, and it is often necessary to extract before the combs are even two-thirds sealed. There are three reasons why it is best for *us* to extract before the combs are sealed, sometimes: First, if the honey is allowed to remain in the old combs, especially catclaw and guajilla honey, it changes its color and flavor; second, some of our honey granulates soon after it is ripe, and it *must* be extracted whether sealed or not; third, sometimes the combs are not sealed at all; and if left on the hives during the winter the honey granulates. The writer had just such a mess a few winters ago.

❧

BEE JOURNALS AND CONVENTIONS.

When a person has occasion to travel a great deal, if he comes in contact with bee-keepers as they are in their homes and in their apiaries he is very often alarmed at some of the things that are learned in this way. One of these is the lack of interest on the part of many of our bee-keepers in reading bee journals and attending bee-keepers' conventions. This is not only true of our smaller bee-keepers, but of larger ones who possess several hundred colonies.

In the first place, such persons are entirely ignorant of any thing pertaining to up-to-date and advanced bee-keeping, and they trudge along in old ruts that have long been abandoned by the progressive apiarist.

Secondly, and worse than the first, after they have produced a crop of honey by hard labor, they are not informed as to the honey market and the ruling prices. They know nothing about what other and more progressive bee-keepers are doing with their crop; and the fact in many cases is that they do not *want* to know, and consequently the crop is dumped upon the market at figures far below the market price. Every progressive bee-keeper knows the results that follow such carelessness.

I remember distinctly a case that happened at home several years ago. A farmer bee-keeper who had just launched out in the pursuit to get rich quick, as some of us were doing (?), after producing several thousand pounds of section honey took it to the merchant where he was accustomed to trade. He was very anxious to sell his honey, but the merchant was not so anxious to buy it. The bee-keeper did not know what price the comb honey ought to bring, and neither did the merchant. Extracted honey brought 7 cents at that time; but the merchant thought it much more trouble to extract the honey from the combs and fix it up ready for the table, so that comb honey ought to be cheaper. Finally both agreed upon this, and the bee-keeper took *five cents* in trade for the entire crop of as nice an article of section honey as I have seen on the average market.

The same quality of section honey was selling at 12½ cts. apiece at the leading groceries of the city, while the merchant who bought the section honey at that ridiculously low price retailed it at the same price as that of extracted honey. Imagine the results in that market!

Many will say that the above is an extreme case, which it is; but it is not the only one of its kind. There are, however, thousands of bee-keepers who think they do not need or can not afford bee books or journals, and who never read them. When they dispose of their crop, however, it is done at a loss of from two to three cents a pound, which amounts to quite an item when the crop is large—large enough sometimes to pay for all the bee journals and books for many years.

My advice to these is to get up out of the old ruts and keep in line with the times. Subscribe for one or more bee journals, and get several books on the subject, and then study them well, and follow out in your work what is learned from your reading. The cost of the original investment will be small when compared with the profits that will be sure to result.

Next, attend the bee-keepers' conventions. They are of the utmost importance, as much is learned at such meetings that is not found elsewhere. By rubbing up against some of the better bee-keepers the otherwise square corners soon round off and thus make a better bee-keeper and a better fellow-man of a person, much more valuable to the whole fraternity.

Pickings from Our Neighbors' Fields BY "Stenog."

In the *British Bee Journal* for Jan. 19 a writer comes to the defense of the black bees against the usual charges laid against them. He utterly denies that the first charge against them, that of bad temper, has any foundation in fact. As to their not being prolific, he dissents mildly. He says, "I grant at once they are not so prolific in the height of the season as the best specimens of Italians. But give me my choice of, say, fifty queens of either race, unselected, and I have no hesitation in saying that I would vote for the natives." As to blacks not storing so late in the season as the Italians, he says his experience is just the other way. As to their inability to resist disease as well as the Italians, he makes a claim that is so peculiar, in the face of other testimony, especially of what Samuel Simmins says in this issue, p. 178, that I quote a few lines:

> Of all the cases of foul brood I have ever encountered, nine out of ten, I think, were directly traceable to the foreign element, and I almost subscribe to the sentiment expressed by a prominent contributor to our pages some years ago when he wrote: "Since we began importing we have had foul brood; before we began importing *we had it not*." To the statement that natives are "helpless" in the face of this disease I absolutely demur. It generally, on the contrary, takes from two to four times as long to kill out a black lot as it does an Italian colony. The latter, frequently in a single season, assumes it in the form of a "galloping consumption." If it catches the infection one season in a mild form, the very prolificness of the queen proves its undoing, because each contaminated occupied shell becomes a center of contagion, disseminating the spores over the surrounding area until no single egg laid by the queen results in a metamorphosis evolving a bee fit to take on its shoulders the active duties of a healthy existence.

Is this a matter of locality?

◆

A month ago I gave a clipping from a Cleveland paper setting forth as wonders what bee-keepers have practiced for many years. An explanation was given, but the editor made no reply. The same week, however, the following appeared in the same journal. It shows plainly that, after a subject has been discussed a good while in the parlor, it finds its way eventually to the servants' hall. It reads:

> A bee that works only at night is found in the jungles of India. It is an unusually large insect. The combs are often six feet, and from four inches to six inches thick.

Somebody has heard of the giant bee, of India, and is palming off the above on the public. Just think of cells two to three inches deep! What the "six feet" refers to is not known. How much would such a comb weigh when filled? What would hold or support it?

Right on the track of the above comes the following, which is too good to lose:

> Alonzo Murphy, a farmer living near Pochuck, while digging a ditch through some black dirt on his place recently, ran across the trunk of a tree about four feet below the surface. The trunk was in a fine state of preservation. The log was about two feet in diameter, and hollow. In the hollow space Mr. Murphy found a large quantity of honey which was in a good state of preservation as was the tree-trunk. There was enough of it to supply himself and neighborhood for the winter. Prof. E. J. Ferguson says the honey has been there over 9000 years. He arrives at this estimate by the depth of the deposit of soil over the log.

There is no such place as Pochuck in the Postal Guide. Don't scold commission men any more for putting honey in a cellar for a week when it can be kept, like "Massa," "in the cold, cold ground," for 9000 years. I should think such honey would "supply" a neighborhood a good while. The skill of Mr. Ferguson in deciding on the age of the honey is quite on a par with that of some scientists in giving the date of the death of the gentleman who left his skull at the bottom of a drift unknown ages before Adam. The Indians have always claimed there were no bees on this continent before the time of Columbus. They called the bee the "white man's fly."

But the great point is, whither are we drifting when the masses get information from such sources? I am glad to see that Mr. York has been calling attention to this matter.

◆

A British pamphlet on the West Indies says there is an opening in Jamaica for bee-farming, and that one with practically no knowledge of bees could start a hundred colonies, with a little assistance from a bee-man on the spot. A writer in the *B. B. J.* wisely warns one first to get experience and then a teacher, and then make sure of that uncertain factor, a market, for his honey.

Editorial
By E. R. Root

Good rains are being reported for Southern California. Let 'em come—the more the better.

The bee-keepers of Michigan are planning for a big affair at their annual State convention, held this year at Grand Rapids, Feb. 23, 24. There are to be exhibitions of both comb and extracted honey, for which liberal prizes are offered by several different supply-dealers and manufacturers, as well as by the editors of some of the bee journals. The National Biscuit Co. will also make a display of their goods that are made with honey. See Convention Notices.

Just as we go to press we have received the announcement of the death of Mr. Geo. W. Brodbeck, of Los Angeles, Cal., Secretary of the National Bee-keepers' Association. He died on Monday, Feb. 6. No other particulars have been received. Mr. B. was a lovable man, and his death will be mourned by his fellow bee-keepers. It will be remembered that, at the last election, the votes were all to be sent to Mr. Brodbeck, the Secretary. As no announcement had been made of the result, many were beginning to wonder what was the trouble. His sickness and death probably explain.

THE ADVANTAGE OF CLOSING THE ENTRANCES OF OUTDOOR-WINTERED BEES.

I have just been looking at some outdoor-wintered bees at one of our outyards, and found them in splendid condition. The temperature was about 10 above at the time of the examination. The entrances were all covered with snow, so that no cold air could be blown in and out. What was the result? The bees were fairly well spread out over the frames in many cases, for the heat of the cluster was sufficient to make the compartment reasonably warm, so they did not have to draw up in the usual small compact masses. Heretofore when we examined our outdoor-wintered bees I have noted that they were drawn up into a mass not much larger than a good-sized snowball, because the heat of the cluster would escape at the open entrance. But this winter we are covering our outdoor entrances with snow or straw to confine the heat *and yet allow a sufficient circulation of fresh air.* Both the snow and the straw confine the bees; then when we have a nice day for thawing, the snow is melted, and the straw is pulled away to give the necessary flight.

I would urge our subscribers to try this entrance-closing for their outdoor bees, and see if they do not get better results than by the old plan of leaving the entrances open the full width of the hive. Of course, it is necessary that the dead bees be raked out on warm days to prevent their clogging the entrance, and always see that it is not hermetically sealed with ice. Loose straw around the entrance shuts out the light and allows of ventilation, but *prevents drafts of cold air.*

Coggshall put me on the track of this when he wrote some time ago of the value of strewing loose sawdust over each entrance in early spring to prevent the chilling of brood on cool days. The bees can easily push the sawdust out of the way when it is warm enough for them to fly, so there will be no danger of suffocation or imprisonment.

HATCHING CHICKENS OVER A COLONY OF BEES.

This thing has been done, and it has been reported and discussed on our pages several times in years past. Now, although I have never made the experiment I feel sure that, were we to make use of the animal heat generated by a strong colony of bees for some purpose besides hatching *their own* brood, it would be detrimental to the colony more or less. In other words, if we hatch chickens by the heat generated by the cluster of bees we can not hatch out young bees with the same heat; and I think the young bees will be of more importance to the general bee-keeper than the chickens. Will the friends who have had experience please let us know about it? It keeps popping up every little while in the agricultural papers; and a bee-keeper in Ashtabula Co., Ohio, is credited with having said that a colony of bees will hatch every hen's egg that is fertile, without any care or attention whatever. One reason why I am doubtful about the matter is that I have seen so many colonies injured or killed outright in trying to put a feeder above the cluster in March or April weather, and have the bees keep the feeder warm enough. The same thing is true in a less degree with lumps of candy put right over the cluster. If your lump of candy is very large, and severe weather comes on, the heat that escapes around the candy, or the heat that is absorbed in warming up the lump of candy, may prove the ruin of the colony unless it is a very strong one. Keeping twenty eggs up to incubator heat, as the above writer claims, would be a pretty severe test on almost any hive of bees unless it were a *tremendously* strong one.—A. I. R.

ONE VERY IMPORTANT ESSENTIAL FOR EVERY COLONY OF BEES.

It has often been remarked, friends—in fact, I think it is one of father Langstroth's axioms in bee culture—that there can be no real prosperity in a colony without a constant accession of young blood; and in the bee-hive there should be young bees hatching out every day. I do not suppose our beloved President Roosevelt knows much concerning bee culture; but he has at different times put strong emphasis on the fact that the perpetuity of our nation depends on homes where little prattlers come in at intervals, but not too far apart. And this preface prepares the way for me to say that the Home of the Honey-bees is now rejoicing over the advent of a new member of The A. I. Root Co., who was born on Sunday morning, Feb. 5. There are now six grandchildren, five of them boys. The latest, just five days old this morning, belongs to E. R. Root. I can not give you his name, for just now it is an unsettled topic, although it is being very freely discussed by all the members of Rootville.—A. I. R.

THE ROOT COMPANY'S BEE-CELLAR UNDER THE MACHINE-SHOP; VENTILATION AND MIDWINTER FLIGHTS.

On p. 183 of this issue we present a view of the Root Co.'s bee-cellar—a room within a room—under the machine-shop, where we have secured such splendid results in wintering during the last three or four winters. The picture in question was taken by means of an arc light, and shows very clearly the interior, the two walls, the automatic sprinkler-pipes to put out fires, the ground floor, and last but not least the tiers of hives on either side. The further end is screened off with curtaining. The end toward the observer is a wooden partition. Our Mr. Titoff, who put the bees in the cellar, did not understand that I desired to have the deep entrances for indoor wintering. The consequence is, most colonies went in just as they came from outdoors, with the ordinary small entrance. The bees getting too warm had flown out, and a good many more than I like to see were on the cellar bottom—rather more than usual. But there are apparently more bees on the floor as indicated by the photo than there really are. But even with the small entrances, covers sealed down, bees are very quiet, and are doing nicely; but if we shut up this apartment tight there will soon be a roar, a buzzing, from here and there numerous bees flying out. Opening the end door, letting in fresh air from the cellar proper surrounding this one room, very soon quiets the bees, and all is quiet.

As I have explained heretofore, this long room (8×50 feet) is one of four running lengthwise through the basement, 36 × 96, 10 feet high. The bees are in one of the central compartments, occupying only about half of that one, the other end being used for the storage of castaway machinery. The floor (or ceiling, rather, in this case) is made up of six-inch plank standing edgewise and nailed to each other. On top of this, or what makes up the machine-shop floor proper, is an ordinary hard-wood matched floor ⅞ inch thick, thus making in all 7 in. of ceiling. This is all that shuts off the roar and rumble of the machinery above.

Lately we have opened the end door of this cellar, and kept it open, screened the windows from outdoors in the larger room, and allowed the air from the outer cellar to circulate freely through this apartment in which the bees are confined. A large screen is placed in front of the opening to shut off what few rays of light may enter. So well have bees been doing in this cellar that by accident the end door has been left open a number of times, letting in strong daylight from a window about ten feet away, just opposite the doorway. It did not appear to disturb them much, and this is what suggested keeping the door open all the time.

When the photo was taken, the arc light was turned on in this room for several minutes, taking several different exposures. In all this time there were perhaps half a dozen bees that flew toward the arc, got their wings singed, and dropped down.

I just wish that any one who thinks ventilation is not necessary would come and note the result of no ventilation and plenty of it on this lot of bees as shown in the illustration on p. 183. Then I wish he would come, too, perhaps a week *before* the late winter flight, then come again *after* they have had their flight. If he does not acknowledge that the bees are more contented and quiet, I will make him a present of a silk hat.

In this connection I might say that we have quite a number of reports from those who have tried these midwinter flights, some of them from old veterans, and all, with one or two exceptions, are very enthusiastic in its praise.

I would call attention to the article by C. Davenport, in this issue, on p. 180, on this subject. Mr. D. is one of the old veterans, and one of our very best correspondents. He has had a large experience; and when he says these winter flights have paid him, some of the doubting Thomases may well stop and think. But there is a right way and a wrong way to give these flights, as Mr. Davenport explains.

THE ACKLINS AT ST. PAUL.

Nearly every locality, as I have before explained, has its predominating moving spirit in beedom. St. Paul, or rather, I should say, the "Twin Cities," have their representatives in the personages of Mr. H. G. Acklin and wife, as well as little Ethel, who has come to be known as the "little sweet singer" at several of our late National conventions. The Acklins, besides being prominently connected with the supply business, own a number of large apiaries, are extensive producers of honey, and rear queens in a wholesale way. Mrs. Acklin is quite as active as her husband, and either one of them can apparently take charge of the business in the absence of the other. Mr. Acklin himself is a man of large physique, commanding presence, genial, and in every way a personality whom one loves to know. Mrs. Acklin is a full complement of her husband, and always radiant with enthusiasm. She has been having poor health of late, and so the trio have gone south to recuperate, in order that they may better undertake the heavy duties incumbent on them on account of their rapidly growing business this coming spring and summer.*

They have been prominent in Association work; and in the general work of popularizing bee-keeping in their own locality, no one has done more. They have given special attention to the matter of preparing honey exhibits at their local fairs, and, I understand, have carried off a good many prizes.

As already stated, little Ethel has often been spoken of as the "sweet singer" at some of our late National conventions, and, indeed, she is; for her voice, for one so young (eleven years), is quite remarkable. Her words ring out with a birdlike clearness and distinctness; and when she sings some of those familiar songs, such as—

Oh! I ish von of dose habby bee-mans—
I don't got to vork any more,

every word is very clearly understood, even through the German dialect. She is always followed with a roar of encore, and it keeps up until she responds with another song.

NOTES FROM THE NEW YORK STATE AND COUNTY CONVENTIONS.

THE local bee-keepers' conventions in New York State from Jan. 9 to 19 were among the best I ever attended. That State has a large number of now famous men, and it is a real pleasure to meet them. Then in many of these counties there is a surprising number of wide-awake men who, although perhaps not quite so well known, are none the less energetic. There is prosperity where bee-keepers have enough interest in their work to form county associations and to hold county conventions.

The bee-keepers of St. Lawrence County got together and organized a society of their own, with a good membership to begin on. There are some extensive producers in that county, and great things may be expected of them. The Jefferson County Association alone added 14 new members to their list. This gives an idea of the interest shown by these enterprising York State men.

It is impossible for me to give any thing like a satisfactory report of the whole series, and it would be next to impossible to give even the more important points; but there are some things that went down in my notebook, and I give them here, hoping they may be of interest.

The practice of sending honey to commission men was severely condemned in several of the meetings. Some commission men are so ignorant that they keep comb honey in cold storage, or in a dark cold cellar, and then have to sell at a low price, of course. W. F. Marks strongly urges straight cash sales, saying that, if *every man* would insist upon cash for his honey, this old story of damaged goods or of poor market, with consequently delayed payment, would soon disappear.

A honey-producers' exchange was discussed, which should be formed for the purpose of establishing and maintaining the price of the different grades of honey. This was generally considered to be a good thing if every producer could be induced to join such an organization.

The question-box proved its value at every convention. Sometimes a beginner, feeling that he had had so little experience, would be more inclined to listen than to talk; but the question-box opened the way for every man to give his ideas, and this is the life of any convention.

It is a pity that all of the papers read at these conventions could not be published; but this would be impossible in this brief report. Two of them, however, contain so many good points that they will be given in our next issue in full.

Both during the meetings and in talking with different men afterward, I picked up a good many ideas which are given here for what they are worth.

Asbestos-tan is a good material for bee-gloves.—L. F. WAHL.

A flat or oval handle beats a round one all to pieces for an uncapping-knife.—W. L. COGGSHALL.

A good paste for sticking labels on tin is: Pulverized borax, 2 oz.; flake gum shellac, 4 ounces. Dissolve in one quart of boiling water.—N. E. FRANCE.

In wintering bees outdoors, should we not keep the wind from blowing directly in at the entrance?—F. H. CYRENIUS.

A cloth damp with carbolic acid will hustle bees out of a super.

If hives are put on a north slope, the sun will not lure the bees from the entrance before it is warm enough for them to fly.—A. A. FRENCH.

Old pieces of Brussels carpet will outlast any other kind used, as a covering over the enamel cloth on the frames.—W. L. COGGSHALL.

"Keep close to nature's ways."—A. A. FRENCH.

Just before swarming time, nail a few cedar or spruce limbs to a stake, and set these loosely in holes in the ground at convenient places about the apiary. Swarms will generally alight on these, and then, without any sawing or climbing, the limb containing the cluster may be carried away.—FRED H. LOUCKS.

Avoid trouble with your neighbors, and so save the money of the National Association. —N. E. FRANCE.

H. S. Ferry, the well-known manufacturer of soda-water machinery, is also an extensive bee-keeper. He attended most of these conventions, showing as much interest as a man who keeps bees as a sole occupation. He showed several ideas of his own invention which were interesting and valuable.

N. E. France was engaged by the State to address each of these meetings. His talks were full of common sense, and his word was accepted as final authority. Certainly the National Association ought to be proud of its General Manager.—H. H. ROOT.

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* Mr. A. has since returned.

GENERAL
CORRESPONDENCE.

THE QUESTION OF OVERSTOCKING.

Has it been Exploited too Much in Our Late Bee Literature! Blind Leaders of the Blind.

BY J. E. CHAMBERS.

Mr. Root:—I notice in your footnote to my article on page 22 you seem to be under the erroneous impression that I intended to criticise your editorial position on the question of overstocking; but if so, I beg to say that such was not my intention. That article was intended more in the nature of a warning to bee-keepers in general and to beginners in particular, and not as a criticism leveled at you. However, I wish to state that there are several bee journals circulating among the very same men who read GLEANINGS, and I very much fear that the editors of some of these journals are indorsing views regarding overstocking that ultimately must lead to harm and serious loss. Furthermore, you know well enough that many small bee-keepers and beginners are now looking to the big fellows who do the writing, for correct advice respecting these perplexing questions. They expect, and have a right to, that those who have made a study of the pursuit, and who pose as worthy and trustworthy advisers, should know something definite about the subjects they write on; and when one of these big guns goes off half primed, and with a loud report, sounding to the uttermost limits of the earth—says put 750 colonies in one yard, and don't have any outyards, there is sure to be an echo from some admiring small gun, with the result that somebody gets hurt, and, of course, it is generally the admiring small gun.

Now, be it understood once for all that I am not saying that the big gun has misstated his achievements; but I do say that, in all such cases, there were exceptional conditions, such as the admiring small gun can not command; and this fact the big gun has probably never taken into consideration. It was just this fact that induced me to say that a warning from you was needed—not that I think you have been remiss in your duty as an editor. However, I want to call your attention to the article of Mr. Louis C. Koehlers. From the heading of that article one would be apt to think that his yield of 15,000 pounds was a great crop, when in truth it is only 59½ pounds per colony. But he has 252 colonies in one apiary. Of course, I do not say that the large number of colonies in his yard was in any way responsible for this less than average yield of extracted honey; but unless the season was a poor one it would seem that it must have cut some figure. You will find the article on page 439, May 1. I have not found any note of warning under this article, but it may be that you have overlooked it—not that I think all large apiaries should be criticised, for, as I said before, there are exceptional localities where from 250 to 700 may be kept; but even these extra-fine locations will probably fail to yield any surplus in bad seasons. It is just such exceptional cases as these that lead the beginner astray; and unless some one points out the danger, what will the ending be? And, again, I will say that it seems to me you have entirely overlooked the fact that these advocates of large apiaries do not admit that overstocking is at all possible, and thus their position stands on books as a continual menace to sound conservative bee-keeping. It is no answer to say that every man has a right to his opinion, for I grant that as readily as any one; but that right ought to be no more than a personal one, and should not, I think, entitle him to consideration when his doctrine is unsound and hurtful to the business or pursuit to which he may belong; and this does not mean that I think such articles should be excluded from publication, or that the authors should be sat down on. But it should be made perfectly plain in every instance that such teaching is not considered sound, and that, for the majority of bee-keepers, it would not be profitable or safe, and that none try it on a very extensive scale.

Again, I notice on page 695, July 15, 1904, an article on overstocking and priority rights, that, while not coming at this manner of overstocking in a direct way, yet argues the legal rights of any one to force overstocking by going into fields already fully stocked, and asserting his right to keep bees even though it results in ruining those already there. Such writing I consider to be dangerous in its tendency, no matter what may be the intentions of its author; yet I find no word of protest from you, Mr. Editor. I think it a mistake to argue the purely legal aspect of such things, to the exclusion of the higher moral side. Just imagine what would be our standing and position if we were forced to adopt that standard by which to regulate our conduct toward each other, and if there never was to be any respect for a right that was not a legal one. Why, we should perish from off the earth.

Now, I do not know whether I have succeeded in making my ideas clear to your mind or not; but you will now understand I think that my intentions were good, and free from any selfish interest, and directed solely in behalf of the interest of the pursuit.

NO NEED OF POLLEN IN SHALLOW BROOD-CHAMBERS.

The third paragraph of your footnote in regard to pollen in sections is a rather puzzling question. You say that even Dr. Miller finds the Danzenbaker hive to favor the storing of pollen in the sections. Of course,

H. G. ACKLIN'S HOME APIARY, ST. PAUL, MINN. SEE EDITORIAL.

—By courtesy of the American Bee Journal.

I am not familiar with the practice of Dr. Miller; but in spite of the fact that he is, from his long experience, entitled to be considered an expert, I yet firmly believe his practice to blame for the pollen trouble, for I use a shallower hive than the Danzenbaker, and my locality is one in which every important honey-plant is a composite; but in spite of this I am not troubled in the least. However, I once made some exhaustive experiments to determine the conditions under which bees are disposed to put pollen in sections, and here is the result: A swarm hived on the old stand, and sheets of foundation used in brood-chamber, with no empty comb, and a super with drawn comb in which the colony had been storing put back on the swarm, always puts some pollen in the sections during the first day or two. A swarm, either forced or natural, hived in a shallow hive, on starters, with full sheets in the sections, sometimes stores pollen in the sections, though not often. If a swarm of any kind is hived on solid combs of brood or honey, and a super containing some drawn comb is put on top, pollen is often stored in the sections, with half or full sheets in the brood-chamber, and starters in the sections. Bees seldom put pollen in sections. My practice now is to hive on foundation except the two outside and one center comb. These are clean, freshly built combs. Full sheets are always used in the sections. Under such conditions no pollen ever goes into the sections. I do not believe there is a worse mistake in the whole line of bee-keeping than this belief that pollen-storing in sections is due solely to the depth of the hive; for if that were true my sections would have only pollen stored in them, for I use a very shallow hive.

This whole question, I think, hinges on the way in which a colony is started. If the main force of bees rush above at once, the queen is apt to follow, and the first work will be storing in the sections, pollen as well as honey; but if the first work is begun below, all will go right.

Vigo, Texas.

[My travels over the country have shown me very conclusively that overstocking almost invariably cuts down the yield per colony, and I have said so. There are many locations in Colorado, Texas, Idaho, and California where bee-keepers have rushed in and put in more bees, with the result that the yield per colony has been cut down in many cases over a half. I have been in localities, however (but only a few), where more than 200 colonies could be kept to advantage. I was in one place where I saw 500 all in one yard, giving a large annual yield; but in all that I have written on this question I have always cautioned against the danger of getting too many bees in one place; and in nearly every instance I have said the localities were overstocked, and that other bee-keepers going into these places would be liable to get a cold reception.

H. G. ACKLIN.

ETHEL ACKLIN.

MRS. H. ACKLIN.

By courtesy of the American Bee Journal.

I do not add a footnote to all communications that appear in GLEANINGS. Some of them are sufficient unto themselves. Others are on topics that are as new to me as they are to our readers. But there is another class of articles that I admit without a footnote, even though they take a position different from what I have frequently taken in these columns. If I should attempt to weaken or nullify by a footnote the statement of every correspondent who differed with me I should be wasting space and make the journal reflect only the opinion of the editor. I allow a good many statements to go unchallenged, for I assume our readers can think for themselves, and in this case it is obviously better for some other correspondent to challenge the statement in question. Primarily this journal is a gleaner. It gleans heads of grain from many fields, and sometimes it gathers chaff and screenings, although we endeavor to give nothing but heads of grain.—ED.]

SELLING PROBLEMS.

Is it Practicable to Get all the Pollen out of the Honey?

BY C. A. HATCH.

Mr. Root:—I send you a copy of a letter which I have lately received, which shows up some of the troubles of a honey-seller, and proves that all is not sunshine and success, even if you do sell your own crop. Allow me to say in self-defense, that in my experience I have received but one other serious complaint.

COPY OF LETTER.

Mr. Hatch:—The last shipment of honey was very slow in making its appearance, and that has been the case with all previous ones except when shipped from Twin Bluff; that one came in nine days; so if it is all the same to you I should much prefer you to ship from there.

You evidently forgot to put wire around the cases in the last shipment, and in the lot (ten cases) there was not one whole one when they got here. Some of them were badly damaged, causing them to leak, and waste the honey when melting, but did not show enough to put in a bill against the railroad. For shipping this distance, each case should have two wires put on, equally distant from the center and ends.

There is another matter I am sorry to have to mention. The quality of the clover honey is not what it should be and *has* been heretofore. It is darker in color, and the fine flavor is lacking; also some of the cases are full of black specks, and it is a hard job to get them all out. Some are light, and come to the top of the honey, but some stay in the honey in spite of all we can do. The basswood is A No. 1, as the clover always has been heretofore. I have always bragged that the quality was uniformly good in each shipment; but this shipment takes the wind out of me.

Now, mind you, Mr. Hatch, I do not mean to imply that this has been intentional on your part, but I am stating facts just as they are, and the effect is just the same as if you meant it to be so.

I want some more honey if you can guarantee as fine quality as in the three first shipments. C. C. M.

P. S.—Since writing the above I have cut open a can and found it was rusted through so it leaked when melting.

Colby, Kan.

RAILROAD AT FAULT.

You will see that for the two first complaints, 1, slowness of arrival; 2, cases broken, I am not at fault; for Twin Bluffs is a near-by station on the same road, and could possibly make no difference in time of delivery, and the broken cases are entirely owing to the handling of the "gentle" baggage-smashers.

WIRING CASES.

The lack of putting a wire around the case was a matter of forgetfulness on my part. But as he is the only one who ever requested it done, there is some excuse for forgetting it. To do this is a good thing, however, where tin cans in thin wooden cases are to be shipped long distances, and many transfers on the route. Honey is heavy, and freight-handlers are not paid for being careful, but to get the most done in a given time.

KEEPING UP QUALITY.

His next complaint as to quality was a "stumper," and is yet. I have only two apiaries, ten miles apart, and the honey of the two is as much alike as two peas, and the only explanation I can give is that one lot was overheated in melting, and thus spoiled. I am sure none but best clover was sent, which shows, that whatever may happen to your product before it gets to the consumer, you are the one blamed.

SPECKS IN HONEY.

This is what he complains of next, and there is where he hits me square in the face, for honey full of black specks is an abomination. But how to get them all out is what I am unable to say—that is, with a reasonable amount of extra work. True, we could be sure all were out if all honey were melted and then run through a fine strainer while yet warm; but who wants to do this just to suit one in ten of his customers? I am not referring to dirt of any kind in honey, for that should be kept out at any cost, but to specks of pollen. My honey is taken from the extractor and run through a cheese-cloth strainer into a large tank holding about one ton; then after standing at least 12 hours it is skimmed and drawn off into new 60-lb. tin cans. If I make my strainer finer, the honey will not go through at all; and yet as it is, enough does go through and remain after skimming to show. I do not think it would show, but I think the small particles unite, one with the other, when the honey is melting, and so make large specks. I have tried gravity strainers, but with no better success. Can some one suggest a cheap, effective, and sure means of taking all pollen out of honey? But will the flavor remain the same if we do? Are not the fine particles of pollen what gives honey its special flavor?

My correspondent complains of a can being rusted through, and leaking when melted. This might come from having used an old can. I have been using some cans the second time when I emptied and cleaned them myself, but I think from this on I will use no more.

Of course, in my reply to him I did not fail to thank him for his criticism, although it made me feel blue all the way through; for if there is one thing I am proud of it is the satisfaction of my customers; and, to repeat C. C. M.'s figure, it "knocked the wind out of me." But I mean good shall come from it; and if I can not hold this customer I shall try harder to hold the next one.

Richland Center, Wis.

ITALIANS AND FOUL BROOD.

Proof that the Yellow Race does Resist the Disease.

BY SAMUEL SIMMINS.

In GLEANINGS for Dec. 15 I notice the remarks made by yourself and Dr. C. C. Miller, p. 1144. From a very long experience I am convinced that Italians and also Carniolans are better able to keep disease at bay than the black (or German) variety. You suggest that it is probably because Italians are less inclined to rob. That must always be a factor in relation to the spreading of the disease; but when I state that Italians and Carniolans are troubled less than black bees I desire it to be understood that they readily dispose of the plague; and when queens are introduced into apiaries of blacks where foul brood is prevalent, they will soon show a clean bill of health.

By a strange oversight my seventh proposition was omitted from the 1904 edition of "A Modern Bee-farm." It will be found in *Bee Chat* for November, 1899, page 50, as follows:

"Native bees are decidedly more subject to the disease of foul brood than either Carniolans or Italians; but the latter more readily respond to treatment when affected, and will quite frequently dispose of the malady without aid from the owner."

"Right here I place my hand upon the wavering balance of opinion as to the effect of various medicinal agents applied in combating the disease, as well as regarding the undoubted fact that colonies will at times recover, not only without such agents, but most certainly by treatment which aims at exterminating the complaint by causing the spores to germinate under conditions where they can not be reproduced. . . . The whole matter turns largely upon racial vitality and energy. . . . The different races of bees under treatment by persons making exactly opposite statements will be found to account largely for the apparent contradictions.

"On one occasion I bought a number of stocks from (I then found) an infected source. Half were native, the rest Italian. The former were diseased, but none of the Italians.

"In another instance I bought eight skeps of black bees. At the time, and even for several weeks after transferring, these bees appeared healthy. Presently one after the other showed signs of disease; and, though I gave medicated food, there was no disposing of the scattered foul cells until the queens were superseded by Carniolans and Italians. During the whole time these were the only stocks diseased in an apiary of foreign bees many times their number.

"At a bee-keepers' convention held in Melbourne, black bees were condemned as being subject to disease. I quote from the *Australian Bee Bulletin:*

> 'Mr. W. Symes said his earlier experience had been with black bees; but he found them subject to foul brood so much that he almost despaired of getting rid of it; but since he has introduced Italian bees the disease has gradually disappeared, and now has ceased to trouble him.'

"Mr. Bennett bore evidence to the superior qualities of the yellow bees in resisting disease, giving the result of some experiences in endeavoring to inoculate Italian bees by feeding them with honey taken from foul-brood colonies.

"It was agreed on all hands that the points of excellence in the matter of resisting disease were with the yellow race of bees, giving them, therefore, a superior place."

It would, of course, be idle to say that these more prolific races do not and can not have the disease. Carniolans certainly come from a district where foul brood is unknown; not so Italians, for it is well known many Italian apiaries have suffered severely. This may be from degeneration where any particular strain is reared from the same stock year after year; but where Italians are procured from different sources, and recrossed with unrelated strains of the same race, there can be no doubt that this added vigor, together with their prolific qualities, assists them in repelling the plague.

Again, if one deliberately infects a colony of bees, nothing can prevent them from having the disease, no matter what the race; but here is the gist of the whole matter—the blacks do not attempt to subdue it: the others do—so much so that for a long time the inexperienced eye would detect nothing the matter with the combs; while a favorable season, or a little judicious assistance, would enable them to eradicate it entirely.

When bees are under the influence of a rousing activity, as is the case with a heavy honey-flow, disease makes no headway, and is frequently cured without further aid; and consequently, when treatment is to be carried out for curing at other times, the medicated food should be given rapidly, and the combs fed up solid when the honey season is over. This will be found the grand cure, raising as it does that energy and new vitality so necessary in throwing off disease. Here I have found izal the simplest and safest remedy, being non-poisonous, and even liked by the bees. It has been most effectual in ridding many apiaries of foul brood where my instructions have been followed.

Heathfield, Sussex, Eng., Jan. 7.

[Mr. Simmins is the author of "A Modern Bee-farm," an English work of no ordinary merit. I have been trying to find time to give it a review in these columns, and hope to present it soon. The facts presented by Mr. Simmins, who has made foul brood a study, are interesting as well as significant. The other evidence already given, and yet to be presented, showing how the Italians are better able to resist foul brood and other diseases, scores one big point in favor of the yellow race. It is probable that the author of bee books have not made enough of this point.—Ed.]

THE HERSHISER COMBINED HIVE-STAND AND BOTTOM-BOARD.

Some Misconceptions Corrected.

BY OREL L. HERSHISER.

Mr. Root:—Feeling certain that you wrote the footnote in reference to the Hershiser combined hive-stand and bottom-board, page 77, without a clear conception of its construction and adjustments, I arise to explain away your erroneous conclusions.

The trifling additional expense will be of no consequence when the resultant advantages and profits from the use of the bottom-board are considered. The stand needs no expensive foundation. Four bricks or two pieces of scantling will answer. In wintering bees, stronger colonies and more of them in the spring; the convenience in placing the bees in the cellar and removing them therefrom; the ease and rapidity with which bees may be prepared for transportation to and from out-apiaries or for shipment long distances; the control of the bees in robbing; these and the many other considerations of convenience and economy, are the claims upon which this bottom-board and hive-stand is presented to the bee-keeping public.

The floor-board does not bind, nor become tight and immovable, because it is made enough narrower than the stand to allow of free movement. As stated under the description of Fig. 3, page 75, "it rests snugly against the shoulder formed by the upper inside rim F;" that is, it rests against the lower surface of the upper inside rim, and does not press against the sides of the stand. Painting the bottom-board will enable a closer fit, and make it last longer. There is no necessity for the floor-boards to be made with the grain running crosswise.

The edges of the floor-boards being beneath the lower surface of the upper inside rim, nearly half an inch out of reach of the bees, they could not possibly propolize its edges. At the line of contact, along the edges of the upper inside rim, the bees will undoubtedly propolize a little, the same as they do in the angle of the floor and sides of the ordinary bottom-board. But it is not a serious matter there any more than it is between the supers and bodies of hives where we all know how to manage it. When you prepare bees to be placed in the cellar you "go around with a pry, put it in the entrance, and break the propolis connections" (GLEANINGS, page 83). You need take no more pains than that in loosening the Hershiser bottom-board. If propolis ever gets under the upper inside rim, as it may if the bottom-board should not be returned to its exact former position, the yielding springs will adjust themselves to it, and the constant pressure will flatten it out, leaving the bottom-board in its normal position. There will be no annoyance from propolis as the result of adjusting the bottom-board to an intermediate position, when its sides can be reached by the bees, as it is only at such short times as periods of heavy honey-flow or in hiving swarms—times when little propolis is being gathered—that such adjustment is necessary. It is very easy to remove and scrape these bottom-boards if they need it.

My cellar contains 153 colonies of bees, all shut in the hives. There are no dead bees on the cellar floor except a few scattering ones from defective hives. There are very few dead bees on the floor-boards. Bees are in fine condition, and very quiet, and are passing the winter almost "without a murmur." These bees were closed in at the out-apiaries about the first of December, when the temperature was below freezing, most of them hauled about ¾ mile, and some of them 4 miles, and placed directly in the cellar. The cellar was warmed up so the live bees on the floor-boards could crawl up into the cluster. Hence I conclude it is not bad practice to shut bees within the hive, provided it is properly constructed with that object in view.

Buffalo, N. Y.

[I will explain to our readers that, at the time I prepared the footnote, I did not have an actual sample of the bottom-board. My assertions were based on the drawings, which gave the impression that the floor-board reached clear across—came in actual contact with the sides, and would therefore be glued fast. The sample before me shows that such is not the case ; in fact, the floor-board may be narrower by ⅛ or ¼ inch, and still not materially interfere with its actual operation. The only objection that remains is that of expense. It may be possible to whittle this down to a point where the bee-keeper can afford to use it in connection with his hives. Some, like Mr. Hershiser, would feel that they must have it any way. There can be no denying the fact that, for moving bees and for wintering in the cellar, the device has features that are valuable. How far these would counterbalance the first cost it is hard to say.—ED.]

WINTER FLIGHTS FOR CELLARED BEES.

When Such Flights May be Given to Advantage.

BY C. DAVENPORT.

That Straw on page 12 in regard to midwinter flights for cellar-wintered bees induces me to give some of my experience in the matter again, for I have practiced giving cellared bees a winter flight for a good many years. I wrote about and advocated this practice under certain conditions nine or ten years ago in the *American Bee Journal.* What I said in regard to the matter caused some comment at the time; but the general verdict or opinion was that these midwinter flights did more harm than good. Some claimed that, after being put back, the bees would not settle down into a dormant state again, but would remain restless and uneasy until put out in the spring if they lived that long. Others said that these winter flights would cause, or be very apt to cause, brood-rearing to be started, which would mean death to the colony before spring; or if brood-rearing was not started it was thought that the great excitement of a winter flight might weaken the vitality of the bees so that spring dwindling would result.

But time moves on, and opinions change; and as this subject has been given some prominence the past two winters or so it may be of interest for me to go over the subject again, for my experience in this matter extends over a period of fifteen years or more. By this I do not mean that I have given all the colonies I winter in cellars a flight every winter; for if bees are wintering well, and remain in a quiet dormant state until time to set them out in the spring I do not believe a winter flight is necessary; in fact, I believe it may do more harm than good—not necessarily the flight itself, but the excitement and disturbance of getting the bees out and back in the cellar may draw more on their vitality than the longer confinement would. On the other hand, if, owing to poor stores or an unfavorable cellar, the bees begin to get restless and uneasy toward the latter part of winter my experience has been that a flight at about this time is a great benefit. I feel morally certain that a great number of colonies to which I have given a flight under such conditions, and which have come through the spring in good shape, and built up into strong colonies in time for the white-honey harvest, would have perished by spring dwindling if they had not been allowed to have a winter flight. I have often had large numbers of colonies that had dark fall honey, and in some cases more or less honey-dew for winter stores, get restless toward the latter part of winter, and begin to spot the hives. Such, when given a winter flight, always came through in much better shape every way than colonies in the same condition that were not given a flight.

But one thing in regard to winter flights that I learned by dear experience is that, after a colony has had a good flight, it should be put back the same day, or at least the next, or brood-rearing may be started. One year I set a large number out about the middle of January, and left them out about a week, as the weather continued so mild that they could fly every day. Over two-thirds of them started brood-rearing, and I lost nearly all of these, for they seemed to keep on trying to rear brood after being put back in the cellar, and most of them ran out of stores, and starved to death before it was time to set them out in the spring. I never knew a colony, though, to start brood-rearing if it was put back the same day, or early the next, before they commenced to fly.

Southern Minnesota.

[Our experience here at Medina confirms Mr. Davenport in every particular, so far as we have gone. We have always put our bees back the same day, as we would not dare to take our chances on having another favorable day. I can readily see, however, how a *week* of good weather might set the bees to rearing brood so as to sap materially the vitality of a colony at a time when it could ill afford to lose any strength.

I can not help believing that the conclusion arrived at a number of years ago, that there was *no* advantage in taking bees out of the cellar, was utterly erroneous. If they are suffering because of overcharged intestines, why would not positive relief be given if that poisonous fecal matter could be discharged? Certainly it would.

If we get right down to it, I think we shall discover that the reason why the practice was given up was because of the nuisance or bother. Then is it not true that some who condemned it allowed the bees to stay out for a flight too long or selected days that were too cool? I have never advocated more than a few hours' flight on a *favorable* day, then putting the bees back in the cellar again the same day.—ED.]

WHAT MADE THEM GO OUT ?

Why Some Bee-keepers Succeed and Some Do Not.

BY C. E. WOODWARD.

I am asked every now and then why so many people go out of the bee business every year. In the first place, I do not admit the implied condition of affairs as stated in the question. They say to me that the bee business can not be a very profitable one or it must have a great many more unusual drawbacks than most other kinds of business. I do not believe the number of those who drop out of the bee business is any greater in proportion than in many other lines of trade in the mercantile world. It must be remembered that hundreds of people become interested in honey-producing and queen-breeding each year, and they represent all classes and characters of humanity, from the schoolboy to the aged invalid. Many of them have made failures in numerous callings of life, hence they are attracted to the bee business and think it a very easy one; and the result is, another failure to be recorded in the chapter of misfortune. Those who go into the bee business with this idea seldom succeed, because they are woefully ignorant in regard to the elements necessary to success, and are not willing to give the work the attention and money which it ofttimes needs.

Looking at the bee business from the view of dollars and cents, it should be borne in mind that capital and experience are necessary for success unless one is willing to start in a small way and is satisfied to wait till the business can be established on a paying basis, which can not be done in one season. I know of no other vocation in which those interested expect as great returns in so short a time, and with so little outlay, as with the honey-bee. They seem to look on it as an easy get-rich-quick proposition—that the bees board themselves and work for nothing, and they are to take in the proceeds thereof; then if their expectation is not fulfilled they are quite apt to condemn the business because this class of people have failed at it. On the other hand, investigation shows that the man and not the bees was at fault. Many who become interested as queen-breeders, either as a fad or for profit, do so with a very faint idea of what is required to reach the point at which they are aiming. The greatest stumbling-block is their lack of knowledge of the principles of queen-breeding.

This need not be the case, because we can all learn; but the trouble with many lies in their unwillingness to learn. I know people who take the bee-journals but never read them. I also know others who keep bees and will not take a bee journal. They either ridicule the idea of any special study being required, or they are too tired mentally to become sufficiently interested. History repeats itself again, and another man goes out of the bee business.

The fact of the matter is, the bee business is a full-fledged one, worthy of the talent and time of our best men and women, both of whom must have a certain degree of intelligence and business judgment, and, unfortunately, there are many people who get into the bee business who do not fit this description; and, in short, the bee-keeping fraternity asked what made them go out. If every one who goes into the bee business were successful it would be utterly impossible for the business to have reached its present magnitude. Make up your mind what your circumstances will permit you to do, and live up to your determination at any cost. Your will power depends upon it.

Thousands of little bee-plants and a few big ones sprang up with the green of last spring; and thousands of little bee-plants and a few big ones will go down with that same green, under the frost and snow and ice this winter. Whether your little enterprise will hardly survive the gray cold winter, and be ready and eager to flourish again in the spring, or be steeped in destitution, and be set down as a failure, remains entirely with you. Why not obey conscience and tell the truth? The old adage, "There is no royal road to success," applies to the bee business just as well as to other vocations in life.

Matanzas, Cuba.

HOFFMAN-FRAME DISCUSSION REVIEWED AGAIN.

Early vs. the New Form of Construction.

BY DR. C. C. MILLER.

I think the reading of GLEANINGS, for Oct. 1, 1904, has made me more charitable in my views. That symposium on Hoffman frames shows that men whom I have reason to esteem as good square men may hold as their honest convictions opinions diametrically opposed. The difference in belief may come from difference in conditions, and it may come from difference in management. As to conditions, the presence or absence of propolis has an important bearing, and so, possibly, may other conditions. As to management, J. A. Green emphasizes the point that *squeezing the frames together* is a matter of first importance; and the man who fails in doing this every time after having taken out frames fails in the proper management of Hoffman frames, unless propolis is entirely out of the case.

It may be a fair question to ask whether all taking part in the discussion are talking about the same thing, for there are Hoffman frames and Hoffman frames. As first made—and I plume myself just a little on the times I didn't say unpleasant words when handling them—the top-bar for three inches of its length at each end was 1⅜ inches wide. Figuring up the surface of contact of each top-bar at the four places where it joined its neighbor made several square inches, and at each end was the 1⅜ inches where the end of the top-bar was glued to the end-wall of the hive. The wide ends of the top-bar were then cut down to the same width as the central part of the bar, and that was a big improvement. Then the ends were cut off so there was a bee-space between the end of the top-bar and the hive-wall. That leaves the Hoffman frame of to-day, if I am not mistaken, with no impinging surface except the ¼-inch thickness of each end bar for 2¾ inches of its length at its upper part, a total surface of only 2¾ square inches to give a chance for mashing bees or admitting propolis. I don't know just how much of surface there was in the original Hoffman, but I think it was three or four times as much. Every particle that was cut away of the original impinging surface was an improvement, and it may not be out of order to inquire whether the improvement can not be carried still further. Instead of having those shoulders 2¾ inches long on the end-bars touching their whole length, suppose the middle part be cut away, leaving ¾ inch at the upper end and ½ inch at the lower part. That would space the frames just the same, and give the bees a chance for only half the gluing.

Views conflict as to the V edge. For those who take Mr. Green's advice (squeezing the frames close together) the V edge ought to be a good thing. For those who leave the frames loose, it is bad; for the bees will put more glue into the angle made by the V edge than they will on two square surfaces meeting.

The objection that, with the V edge, the end-bars will slide by each other is hardly a valid one. To allow such a thing there must be at least ⅛-inch play endwise *unless* two V edges come together—a thing that can never happen if the frames are rightly put together, although it may easily happen if they are made wrong. Ought not instructions for putting together appear in the catalogs? Mr. Green says, page 931, "The Hoffman frame should be nailed up so that one V edge is on each side of the frame." Right, so far as it goes; yet that may allow two V's to come together, for it will allow two different kinds of frames. Perhaps this instruction might answer: Make your frames with a V edge on each side of the frame, in such a way that, when the frame is held up before you by both hands, the V edge shall be toward you at the left and from you at the right.

The symposium loses a large part of its value because of the fact that it is limited to a comparison of the Hoffman with the loose thin-top Langstroth frame. That leaves it still an open question, so far as the symposium is concerned, whether some one of the several other frames might not be preferred to the Hoffman, at least by some of the writers.

There is more than one frame in existence which possesses all the advantages that I remember to have seen claimed for the Hoffman, without the objections that there are in the minds of some against them. It might make interesting reading to have a similar discussion without having it so limited in its scope.

Marengo, Ill.

Mr. J. A. Green suggests using a spring similar to that used in comb-honey supers, but stiffer. Those who have used square edges, and prefer them, probably are careful about squeezing the end-bars together.

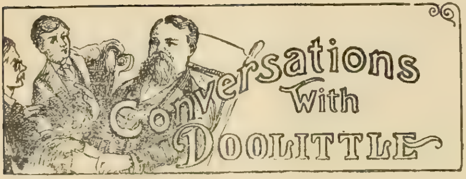
You say there is more than one frame in existence which possesses all the advantages that you remember to have seen claimed for the Hoffman, without the objections. You possibly have in mind as an example the Miller nail-spaced frame, or some of the staple-spaced put out by some of the manufacturers. A serious and almost fatal objection to *any* form of metal spacing is the care that must be exercised in uncapping, and the consequent danger of dulling the keen edge of the knife. We are anxious to know about those frames that have "*all* the advantages" of the Hoffman "without the objections." I can't help thinking you are mistaken as to the existence of such frames. To say that you are a comb-honey man, and therefore do not have to bother with an uncapping-knife on your nail-spaced frame, does not remove the objection to the three-fourths that produce exclusively extracted or both comb and extracted.

THE A. I ROOT COMPANY'S BEE-CELLAR UNDER THE MACHINE-SHOP. SEE EDITORIAL.

[Your scheme of having the length of the contact edges of the end-bars of Hoffman frames reduced would work beautifully for only a short time. It would weaken the projecting edges so that they would split off worse than they do now when propolis is bad.

Regarding the question of square vs. V edges, I am satisfied that, after reading all the pros and cons, the V edge ordinarily should not be dispensed with, by the beginner at least. I tried both forms very thoroughly years ago—first the square and then the V. I finally came to the conclusion that Mr. Hoffman was right—that the V was better. If a square edge is used, frames *must* in every case be crowded *tightly together;* and I am of the opinion that some form of compression should be used also.

The instructions for putting the Hoffman frames together are printed in the form of a pamphlet, and sent out with each bunch of frames. We used to have instructions incorporated in our catalog; but that space had come to be so valuable that we were obliged to leave out all directions for nailing up stuff. —Ed.]



Conversations With Doolittle

AFTER-SWARMS—CAN THEY BE PREVENTED?

"Say, Doolittle, I want to know something about after-swarming. Can I have a talk with you on this matter?"

"Yes. But, Brown, after-swarms do not issue during the months of February and March, in this locality."

"I know this talk will be a little out of season in that respect; but it will be right in season to such as I who wish to prepare hives for increase, during the time the snow is on the ground, when work at farming is having its slack season."

"Yes, that is true. But you wish increase, do you not?"

"I am always pleased with the first (or prime) swarm; but the after-swarming is often so long-drawn-out that it becomes a nuisance; yet so far such swarms are something that I have been unable to dispense with, so I want you to tell me, if you can, some method for stopping them. At least, tell me something about them so that I can know more of this matter than I now do."

"There have been various methods given for the prevention of after-swarms, such as removing the old colony to a new stand as soon as the prime swarm has left it, setting the hive containing this new or prime swarm on the stand it previously occupied; cutting out all the queen-cells but one on the sixth day after swarming, and hiving the after-swarm in a box on top of the old hive till the next morning after they came out, when they are to be shaken out of the box in front of the old hive, and allowed to run in so that the young queens will, all but one, be destroyed. All of the above plans have their various advocates, who think them superior to any thing else, and in the hands of experienced bee-keepers the most of them have more or less value in them."

"Have you tried these plans?"

"Yes, I have tried every plan of which I have ever read."

"Don't you find some superior to others?"

"Yes; and out of all the plans given, I have selected two as being the 'cream' of the whole, using them for nearly or quite a score of years with perfect success."

"That sounds something like it. Would you object to telling me so I can use them?"

"No. I use them in accordance with what I wish to do with the old colony of bees. Where I wish to remove the old hive to a new stand, while the swarm is in the air, hiving the prime swarm on the old stand, I proceed as follows: As soon as a swarm is seen issuing from any hive I get another hive, which has been previously prepared, having the desired number of frames in it, taking it to the hive from which the swarm came."

"Excuse my breaking in. But do you use empty frames?"

"Not generally. I prefer frames filled with foundation for this, or, better still, frames filled with empty combs."

"Thank you for explaining this. I shall have to use foundation. But go on; you had the hive of frames at the hive casting the prime swarm."

"These frames are now taken from this hive and set near the other, when I open the hive and take out the frames of brood, putting them in the hive I have just emptied. If these combs of brood have many bees on them, and the weather is warm, I shake a part of the bees off in front of the hive as they are lifted from their place preparatory to placing them in the hive I brought with me after which each comb is set in the new hive If few bees, or the weather is cool, no bees are shaken off. Having these combs of brood in the new hive, the same is set a rod or two away."

"Why do you set it thus?"

"So that the returning swarm may not find it; for should they do this they might be inclined to go on this brood instead of going into the hive we wish them in."

"I see."

"I now put the frames brought with me into the hive I took the brood from, and rearrange it, by which time the swarm will be returning, if the queen has a clipped wing, as all queens should have where natural swarming is practiced. If the queen is not clipped, then the swarm is hived in this prepared hive on the old stand, the same as any swarm is hived."

"What do you do with the combs of brood and bees set a rod or two away?"

"I set these on a stand where I wish a colony to stay, and adjust the entrance to suit their wants, when they are left till the next morning."

"Give me the reason for this."

"By this time nearly, if not quite, all of the old or field bees which stayed on the combs have gone back with the swarm, or to their old location, so that the young bees which remain are ready to accept any queen or queen-cell that I may give them."

"Ah! I see."

"I now go to some nuclei which I may have, and take their queen, if I wish the colony to have a laying queen; or to the queen-nursery and get a virgin; or, if I have neither, I get a ripe queen-cell and give to them."

"Don't you use any precaution in introducing where you give a queen?"

"I introduce as follows: Upon opening the hive I take out one of the central combs, holding the same up before me. As the bees are all young, they will at once take to filling themselves with honey; and while they are so doing I let the queen run on the comb where there are a few cells of honey not occupied with other bees eating out of them, when the queen will commence to fill herself also, I holding the cage over her till she begins to feed, as she otherwise might fly away. The frame is now lowered into the hive, and the same closed. In this way the bees and queen appear natural, and I have yet to lose the first queen put in under such circumstances."

"Don't you cut the queen-cells off from the combs—those that were on when the colony or swarm went from them?"

"No. The colony is so reduced in all old bees that, as soon as they find they have a queen, the bees proceed at once to destroy all queen-cells, so that no after-swarms ever issue—at least, an experience covering a score of years says that none do with me."

"Well, that is good proof. But you spoke of another plan. Perhaps I might hear that."

"This is equally successful with the one I have just given, but is used only where I wish to treat swarms in the old way, that of hiving the prime swarm on a new stand, as our fathers did. When such is the case, as soon as the swarm is hived I go to the old hive from which it came, and mark on it with a pencil, 'Sw'd, 6—20,' which tells me at a glance that a swarm came from that hive June 20, should that be the date on which the swarm issued, and the one which was marked on the hive. If it should be another day, the date is different; but the plan is the same, and suited to any day on which a prime swarm issues."

"How does this help you?"

"This helps me to know when a young queen is likely to emerge from her cell, and on the evening of the eighth day from the date on the hive I listen a minute or two, by placing my ear against the side of the hive; and if swarming has been done 'according to rule' I hear a young queen piping, and by this I know that a young queen is at liberty in the hive, and that an after-swarm may be expected the next day."

"Suppose you hear no piping. Is that an evidence that no swarm is to come from that hive?"

"No; but where no piping is heard on the night of the eighth day I do not listen again till the evening of the thirteenth day; for the next rule is, that the colony swarmed upon an egg or small larva being in the queen-cell, which allows the young queen to emerge from the twelfth to the sixteenth day after the prime swarm came. If no piping is heard by the evening of the seventeenth day, no swarm need be expected."

"I am glad to learn this, for I knew very little in this matter before. But what do you do when you hear piping?"

"When it is heard, which it will be nine cases out of ten on the eighth day, if the colony is to cast an after-swarm I go early the next morning, and take every frame out of the hive, and shake the bees off each (in front of the entrance) as I am returning them, so I shall be perfectly sure not to miss a single queen-cell, but cut all off; for by this piping we know that there is a queen at liberty in the hive, so we need to leave none. Yea, if we do leave any we know it means a swarm, as soon as the cell left becomes ripe."

"Then you think that these two plans will work every time, do you?"

"My experience tells me that these are *sure* of accomplishing just what we desire, under all circumstances which may arise; or they are plans which we can 'tie to,' as the expression goes."

Heads of Grain from different fields

HOW TO FEED IN THE SPRING; HOW TO MAKE ROCK CANDY FOR THE PURPOSE.

On page 16 Doolittle says, "For feeding at this time (spring) I prefer combs of sealed honey set in next to the cluster. If none such can be had we must feed sugar syrup or liquid honey if we have it; but the latter tends to promote excessive robbing."

This being the time of year when beginners wish to know about the best way to feed stocks that are short of stores I will, with all due deference to Mr. Doolittle's extensive knowledge and experience, give my way, which I believe, all things considered, is far superior to the one given above. I put pulverized sugar into a large dish or pan; add warm extracted honey, sufficient to make a stiff dough of about three or four pounds when thoroughly worked, so that it will not run when warmed by the cluster of bees. Flatten it out to about an inch thick; place it on top of the frames over the cluster, with a cloth over the top; put on the super, and pack with any thing that will prevent the heat of the cluster escaping. Repeat whenever necessary until honey comes from the fields.

Thus fed they will use it as needed, and keep up brood-rearing at a rapid rate and "niver a bit" of robbing.

Udell, Iowa. G. B. REPLOGLE

[The ordinary pulverized sugar in honey mixed into a stiff dough makes a very excellent bee candy for cold-weather or spring feeding. But one objection to this kind of feed is that the granules will sometimes rattle down on the bottom-board, and be carried out and wasted. The candy that we prefer is made by mixing sugar and a little water and a little honey, and boiling long enough so when cold it will form a translucent block of rock candy. Do not stir, as that makes it somewhat mealy or grainy, and the result is the bees will cause the granules to drop down and so be wasted. The honey is necessary to prevent graining. It may be a little sticky, but it should be wrapped in paraffine paper, and then when ready for use the paper should be peeled off on one side and placed on top of the brood-frames. Our experience in giving *liquid* feed in cold weather is not favorable. We always use combs of sealed stores first; then, if we have not the combs, candy.—ED.]

IDAHO BEE-KEEPERS; FOUL-BROOD LEGISLATION.

We have before the legislature a bee-disease bill combining the best features of the county-inspector systems of California and Utah. Foul brood is spreading rapidly, threatening all alike, so we want you to write your Representative and your Senator, indorsing this measure and asking his support for it. Then write me a ringing letter in a few words, indorsing our efforts to secure such a law. These letters will be presented to the legislature. Then get up a petition for such a law, with as many signatures of bee-owners as possible, and send it to me. All this will take but little time, but may save the bee-owners thousands of dollars, if we secure such a law. We must act *at once*. E. F. ATWATER, Pres.

South Idaho and Eastern Oregon Ass'n.
Box 37, Meridian, Ida.

HUMIDITY AND TEMPERATURE, AND THEIR RELATION TO HONEY-FLOWS IN HOT CLIMATES.

I should like to know if there is any material difference in the honey-flow where the thermometer ranges from 110 to 120°, with a dry atmosphere, such as we have in the Imperial Valley. My bees did not make much honey here through May and June; but through July and August they did very well. The thermometer during the former months ranged from 100 to 120, with a dry atmosphere, and through the latter it ranged from 100 to 110, with a humid atmosphere. Owing to our proximity to the Salt River Valley, the climatic conditions ought to be nearly the same, and perhaps some one in Arizona can answer the question. Most of the honey here comes from alfalfa. When does the swarming season commence in the Salt River Valley, and how long does it last?

Brawley, Cal. S. D. ULREY.

[When in Arizona some few years ago I remembered hearing Mr. Wm. Rohrig discuss this very question, and I therefore turned this letter over to him for reply, and here it is.—ED.]

Before attempting to answer Mr. Ulrey it will be only fair to say that I have had no experience where the temperature ranged as high as 120 degrees; but for practical purposes in honey-gathering there may be but little difference between that and our temperature of 100 to 112 degrees.

After an experience of 14 years in this climate, where the atmosphere is very dry for days and even weeks at a time, I am forced to the conclusion that dry hot days are not at all times detrimental to the honey-flow, and I dare say perhaps never are when other conditions are right; for during the period of extreme heat we have had very good honey-flows, the bees doing good work before 10 A. M. and after 4 P. M., while doing but little during the middle of the day.

I can not believe that the dry or more humid conditions of the atmosphere were alone responsible for Mr. Ulrey's experience. There are, I believe, atmospheric conditions that are not conducive to nectar secretion, but just what these conditions are I am not prepared to say. There are times when we have apparently ideal weather and abundance of bloom, and our bees largely remain at home, and but little honey is stored. This is equally true when the atmosphere is dry or more humid.

Here in the Salt River Valley, June is usually the best month we have for a honey-flow from alfalfa, and it is invariably a very dry month.

I am not sure just what the necessary conditions are; but I would be willing to take my chances of securing a crop of honey, if we had plenty of irrigating water, during spring and early summer, and alfalfa within range be permitted to bloom before cutting. The swarming season here is during April and May. WM. ROHRIG.

Tempe, Arizona, Jan. 3.

WINTER FLIGHTS.

I have been much interested in the arguments for winter flights of bees that have been placed in cellars. I am only a beginner in this, and perhaps should remain in the background and let the older and more experienced bee-keepers decide; but on page 12, replying to a Straw by Dr. Miller, you say you would like to know how the midwinter flights work in other localities, so I am writing my experience of the last year.

My cellar has to be kept as cold as possible, and not freeze—about 34 on the average, on account of keeping fruit well, so bees have to stand the cold. About the middle of February I noticed my bees were getting a little uneasy; and so on the first bright warm day I placed one hive in my shed doorway in the sun. Why, you would have thought it was swarming time, they poured out so; and after having a good cleansing flight they began to carry out dead bees. I watched them quite closely for two hours, when they had nearly all returned to the hive. I saw only a very few live bees drop on the snow and fail to rise again. After all had returned I carried the hive back into the cellar, and they were as quiet as could be until I placed them on summer stand. There was, as Mr. Quinn says, page 83, a lot of bees, come from my other hives, dead on the cellar floor. I believe bees wintered in cellars need a winter flight, particularly if cellars are as cold as mine has to be, for they have to eat more to keep up their bodily temperature. I shall give all of my bees a flight, if possible, the last of February.

Augusta, Me., Jan. 23. JOHN JACKSON.

OUR HOMES,

BY A. I. ROOT.

He was wounded for our transgressions, he was bruised for our iniquities.—ISA. 53:5.

A few times in my life I have met with people, or have read articles from people, who rejected the atonement. I remember that one man said it was a great blunder—there was no justice in it; there was no good common sense in punishing one man for offenses committed by another. It only made me think that great truths stand out all the stronger for having sharp contrasts. Sometimes a good man is all at once assailed by scandal; and this very thing sets people at work to look up his good qualities, and the result has many times been that the man was thought the more of, and held in higher estimation, because his good life-record had been assailed. In the same way I think I have got a new view or a better view of the atonement because of what skeptics and unbelievers have said against it. Now, I am not going to explain, or perhaps I might say *try* to explain, how it is that Jesus could suffer and die in order that we might live and enjoy life in its truest and highest sense. I am not a theologian; but nevertheless I may give you some help in trying to grasp this wonderful thought of the way in which God saw fit to express his love for sinful humanity.

A few days ago a little tract came floating through the mails. I do not know who sent it. A great many come that I never find time to read through; but now and then I strike a little gem that I would not have missed for any thing. The one I am going to quote from says, "Bible and Tract Repository, Chicago."

> When I was a boy at school, I saw a sight I never can forget—a man tied to a cart and dragged, before the people's eyes, through the streets of my native town, his back torn and bleeding from the lash. It was a painful punishment. For *many* offenses? No; for one offense. Did any of the townsmen offer to divide the lashes with him? No, he who committed the offense bore the penalty all alone. It was the penalty of a changing human law, for it was the last instance of its infliction.

I suppose the above took place in Scotland. You may be aware that it was customary in the Old World to punish people terribly for what we now call minor offenses. In England, for many years men were put in jail for debt; and, if I am correct, men were hanged on the gallows for burglary and stealing. Those old severe laws have passed away or been modified. Perhaps the tendency in the United States is just now to make it *too* easy for transgressors because they are given too light a punishment or none at all. The world could hardly get along without penalties of some kind for transgressing our laws; but these penalties should be commensurate to the crime committed. The laws should be framed by our wisest and best men; and I believe the purpose of *all* law and penalty is to lessen crime. We have been taught repeatedly by history that, when punishment is too severe, away beyond what is reasonable, it seems to defeat the purpose for what it was intended to do. When our people burned and drowned witches to do away with witchcraft, it not only failed in its object, but some of the leaders were appalled by the apparent fact that it made matters *worse*. People confessed to being guilty of witchcraft when they were entirely innocent. The lynching business that has threatened to spread over our land seems in a like manner to make things *worse* instead of better. A certain class of people seem to have almost a mania for committing the very crimes for which others have been so severely and terribly punished. I hope our country is learning that capital punishment, to have the desired effect, or to do any good at all, must be administered by law, and directed by comparatively slow, deliberate reason and common sense. Let us now go back to my little quotation from the tract.

If such a punishment as is described there were undertaken now, in any community in the Unites States, there would be a revolt. The women (God bless them) would revolt and put a stop to such work, even if the men let it go on. If it really were strictly according to law I should expect that some good man, perhaps some of the sufferer's neighbors, would have volunteered to take a part of his punishment. In fact, I should be rather disappointed and ashamed of any community that could not furnish one or more who would volunteer to divide the punishment with him, especially if it was inflicted, as we are told, for only *one* offense. My good father used to tell me, even when I was a boy, that, if our laws were bad, or foolishly framed, the best way to get rid of them was to enforce them. Hold fast to law, no matter what happens. If the law is a bad one, have it enforced and then take the proper steps to have it repealed or changed. In this case, even if it is true that no fellow-townsman offered to help him bear the penalty, it is also true that the feelings of the people revolted to such an extent from such a spectacle that the law was changed from that time forward. This man suffered terribly for his sin and perhaps trifling transgression; but his suffering was the means of relieving all mankind through the great future from a similar punishment. He was in one sense a martyr. We are not told how he bore the punishment, but the little sketch gives us a faint glimpse of the way in which the dear Savior *suffered* that we might *live*.

There is an old hymn my father used to sing when he was busy at his carpenter work. I wonder if it ever occurred to him that his occupation was the same as that of the dear Savior when here on earth. I distinctly remember one stanza of that old hymn:

Was it for crimes that I had done
He groaned upon the tree?
Amazing pity! grace unknown!
And love beyond degree.

In the little sketch the man was guilty of one offense, and he suffered an unreasonable penalty, that those coming after him might none of them suffer the same. Our Savior suffered in the same way, but he was entirely innocent—the only spotless character, so far as sin or crime was concerned, the world has ever known. Let me quote from my little tract once more.

> When I was a student at the university, I saw another sight I never can forget—a man brought out to die. His arms were pinioned, his face already pale as death—thousands of eager eyes were on him as he came up from the jail in sight. Did any man ask to die in his room? Did any friend come and loose the rope, and say, "Put it around my neck, I die instead"? No; he underwent the sentence of the law. For *many* offenses? No; for one offense. He had stolen a money parcel from a stage-coach. He broke the law at one point, and died for it. It was the penalty of a changing human law in this case also; it was the last instance of capital punishment being inflicted for that offense.

You see this was at a time when hanging was the penalty for theft. This man, for the first and perhaps the only time in his life, stole a parcel of money; and in this case also, community at large decided that there was no sense in taking a man's life for stealing a little money. Dear me! what a lot of hanging we should have just now if every man were put to death who takes money (millionaires and all) that does not belong to him!

Years ago when lynching was common for stealing horses and cattle on the plains of the great West, we are told that a good Christian man came on a crowd of cowboys about to hang a man on the limb of a tree, for stealing cattle. This Christian man protested with all his eloquence, but they laughed him to scorn; and finally one of the boldest threatened his life also if he did not stand out of the way, and let them proceed to "business." *Business* indeed! But this Christian man was no coward. He walked up to the man who had a rope around his neck, and said something like this:

"All right, friends. If you will persist in taking this man's life for a minor offense, or, very likely, no offense at all, for I fully believe the man *may be* innocent of the charge you are making against him, you may string me up at the same time."

Then placing his back against the back of the culprit he quickly slipped the noose large enough to put it around his own neck and that of the culprit, and bade them go on and pull up the rope if they wanted to. One of the boldest, and perhaps the most wicked—a criminal himself, no doubt—said, "All right, boys, let's have a double hanging. It will be more fun to hang two men than one. Get hold of the rope, and up they go." For a time it seemed as if this would be the outcome. But when the boys thought of the idea of hanging one innocent man just because he preferred death rather than to see a fellow-being put to death, it was too much for them. It appealed to their better natures. The rope was taken off, and the cattle-thief was allowed to go before the proper authorities and be tried according to law. Is there one among my readers who has not been stirred by a sort of enthusiasm for the man who is bold enough and brave enough to go to such a length in protecting a fellow-being, and one who was an utter stranger?

Let me now take one more illustration from that little tract:

> I saw another sight—it matters not when—myself a sinner, standing on the brink of ruin, deserving naught but hell. For *one* sin? No; for many, many sins, committed against the unchanging laws of God. But again I looked and saw Jesus, my substitute, scourged in my stead, and dying on the cross for me. I looked and wept, and was forgiven. And it seemed to me to be my duty to write this to tell you of that Savior, to see if you will not also "look and live."

The above incident took a mighty hold on me when I read it, for it was my experience exactly. Yes, dear reader, it was your old friend A. I. Root who, something like forty years ago, was himself a helpless sinner standing on the brink of ruin. I was loaded down with Satan's chains. I had striven in vain to break the shackles that held me down, but I was helpless and discouraged—not for *one* sin, but for many. Like the writer of the little tract, in my desperation and utter helplessness I turned to Jesus. I had heard sermons almost without number, but I did not understand that Jesus could take my place. I did not comprehend that he could take the cruel rope from my own neck and put it around his also. I had supposed, in my want of faith, that I would have to carry the iron chains and the shackles by my own strength. And is it any thing strange, friends, that, when he took me and all my burdens, and bade me "go in peace and sin no more," it is my pleasure, even though toward forty years have passed, to continue to tell that old, old story to my friends and neighbors?

I will now give you the rest of the little tract:

> And how simple it all becomes when God opens the eye! A friend who lately came from Paris told me of an English groom there, a very careless old man, who had during a severe illness been made to feel that he was a sinner. He dared not die as he was. The clergyman whom he sent for got tired of visiting him, having told him all he himself then knew of the way of salvation. But one Sunday afternoon the groom's daughter waited in the vestry after church, saying, "You *must* come once more, sir. I can not see my father again without you." "I can tell him nothing new," said the preacher; "but I may take the sermon I have been preaching, and read it to him." The dying man lay as before in anguish, thinking of his sins, and whither they must carry him. "My friend, I have come to read to you the sermon I have just preached. First, I shall tell you the text, *he was wounded for our transgressions.* Now I shall read." "Hold!" said the dying man; "*I have it!* read no more, *he was wounded for my transgressions.*" Soon after, he died rejoicing in Christ his righteousness.
>
> When I read the story, I remembered Archimedes running through the streets of Syracuse straight from the bath where he had found out, in bathing, the secret of testing whether the king's crown had or had not been alloyed by the goldsmith in making it. And as he ran he cried, "I have found it! I have found it!"
>
> Poor philosopher, you have found out only a new principle in science. Happy groom, you have found in Jesus Christ a savior for your precious soul.
>
> The clergyman himself who visited the dying groom was thus awakened and found Christ.
>
> SIR JAMES SIMPSON, Edinburgh, Scotland.

> Verily, verily, I say unto you, He that heareth my word, and believeth on him that sent me, hath *everlasting life*, and shall not come into condemnation; but is passed from death unto life.—JOHN 5:24.

THE MOST IMPORTANT THING IN THE WORLD.

There have been some jokes at my expense, and quite a little bantering, because I am so anxious to see men and women get married and start a home as soon as they are of suitable age; and I have felt sad, also, to see so many childless homes, or homes where one child was brought up alone. Well, I have recently received some most emphatic indorsement of my "peculiar" ideas, and from a source, too, that comes pretty near being as good authority as we have. The following is clipped from the *Independent* of Feb. 2:

> At the Inter-church Conference on Marriage and Divorce, in Washington last week, the resolution of the American Bar Association concerning the unification of State laws for the regulation of divorce was approved, with the exception that the paragraph relating to the marriage of divorced persons was so amended as to permit, after one year, the remarriage of only the innocent party. A large committee or delegation led by Bishop William C. Doane, of the Episcopal diocese of Albany, called upon the President at the White House to confer with him as to the results of their deliberations. In a brief address Mr. Roosevelt said:
>
> WHAT THE PRESIDENT THINKS OF THE DIVORCE BUSINESS.
>
> "There is a certain tendency to exalt the unessential in dealing with our public questions, and public men especially are apt to get their attention concentrated on questions that have an importance, but a wholly ephemeral importance, compared with the questions that go straight to the root of things. Questions like the tariff and the currency are of literally no consequence whatsoever compared with the vital question of having the unit of our social life, the home, preserved.
>
> "It is impossible to overstate the importance of the cause you represent. If the average husband and wife fulfill their duties toward one another and toward their children as Christianity teaches them, then we may rest absolutely assured that the other problems will solve themselves. But if we have solved every other problem in the wisest possible way, it shall profit us nothing if we have lost our national soul; and we will have lost it if we do not have the question of the relations of the family put on the proper basis.
>
> "While I do not know exactly what it is that you wish me to do, I can say in advance that so far as in me lies all will be done to co-operate with you toward the end you have in view. One of the most unpleasant and dangerous features of our American life is the diminishing birth rate and the loosening of the marital tie among the old native American families. It goes without saying, that, for the race as for the individual, no material prosperity, no business growth, no artistic or scientific development will count if the race commits suicide. Therefore I count myself fortunate in having the chance to work with you in this matter of vital importance to the national welfare."

I wish to repeat one or two sentences in the above. First:

"Questions like the tariff and the currency are of literally no consequence whatsoever compared with the vital question of having the unit of our social life, the home, preserved."

Again:

"If the average husband and wife fulfill their duties toward one another and toward their children as *Christianity teaches them*, then we may rest absolutely assured that the other problems will solve themselves."

What an indorsement of the Christian religion! And are we as a people up to that point in faith where we can *believe* that the other problems will solve themselves?

Once more:

"It goes without saying, that, for the race as for the individual, no material prosperity, no business growth, no artistic or scientific development, will count if the race commits suicide."

There you have it, friends. "It shall profit us nothing if we have lost our national soul." I feel sure that God's Spirit prompted our beloved President to utter these words. My heart warms toward him in a way it has never done before.

And now may I be permitted to say to the unmarried men who read GLEANINGS that a solemn and sacred responsibility rests upon them? You are not fulfilling the duty you owe to God and humanity if you remain single. But before you get married, remember it is the most solemn and sacred relation ever assumed by any human being; and when you do marry, let it be for life. Take the dear companion God gives you for better or for worse; and if your faith is in the Lord Jesus Christ it will surely be for better. Especially is it important that all good men shall be married men, and bring up children in the fear of the Lord—children that will surely help to rescue our nation from the many evils that threaten it.

DOES RADIUM STILL RADIATE?

One of our friends asks the above question, to which I answer, "Yes, sir." The blazing shooting stars are scintillating forth exactly as they did when I first got it. In order to test it again, last night I placed it by my bedside, and about 3 o'clock this morning I took a look at it. The scintillations flash out of the eye-piece so plainly they can be seen across the room; and on putting the eye down close to the instrument it seems like a veritable bombardment of fiery meteors. The effect is very much more satisfactory at night. In winter, when the ground is covered with snow, in consequence of the bright light the pupil of the human eye contracts to such an extent that it is very difficult to get a satisfactory view of the radium emanations by daylight, even if you stay several minutes in a darkened closet. In the evening it is very much better, but still more satisfactory when you wake up at night. So far as I can learn from our scientific periodicals, there has as yet been no satisfactory explanation offered for this wonderful phenomenon. Let me explain a little. This bromide of radium is, I conjecture, dissolved in a very little water, or mixed so as to be something like whitewash. Then a very little bit of this whitewash—about what you could pick up on the point of a needle, is dropped on a little piece of metal just about like the hour-hand of a watch. It takes a magnifying-glass, in fact, to get just a glimpse of this little white speck where the radium solution has been dropped and allowed to dry on; but from this little microscopic speck of radium this wonderful radio-activity pours forth day and night, winter and summer, in an unceasing stream of fiery meteors, and yet the little speck is never consumed, and the supply never gives out. It continues unceasingly to shoot out into space heat, light, and power. I am told by the *Scientific American* that a radium clock is already running that will probably run until the mechanism wears out.

OUR POLITICAL BOSSES.

GLEANINGS seldom touches on politics; in fact, I am not a politician; but just now the State of Ohio is entering on a conflict that ought to interest every State of the Union, especially as in most States there is the same or a similar state of affairs. Our political bosses declare that Governor Herrick shall serve another term, no matter what the churches, temperance people, college professors, and those who have charge of our schools have to say in regard to the matter. For some time we have seen statements in our papers to the effect that "Boss Cox" would probably settle the matter when he got ready to do so. Several times I questioned the above, but have been told by men who ought to know that Cox is a very careful man, and what he *says* almost invariably comes to pass. Well, just recently Cox has made a decision in the following words, which I take from the *American Issue:*

> It was my intention not to commit myself on this subject until my return from my vacation; but taking into consideration the fact that my position may be misconstrued I have concluded to make this statement now. I think Gov. Herrick is entitled to the support of all *good* Republicans. He shall have *mine.*

Now, the question naturally arises, "Who is Boss Cox, any way, that he should decide matters of such moment?" Most residents of Ohio know pretty well who and what Cox is, without explanation; but for the benefit of some who do not, I make another extract from the *American Issue* which will explain somewhat. Read the following:

> His admiring friend, Gustav J. Kargar, certifies us in his admirable monograph in Leslie's *Monthly* for January, 1904, entitled, "George Barnsdale Cox, Proprietor of Cincinnati," as follows:
>
> "Every night he may be found at Weilert's resort, in the beer-garden if the weather permits, in the beer-hall if inclement. He often drinks from twenty to thirty glasses at a sitting."*

There you have it, friends. The man who decides for the rest of us who shall be our future Governor often drinks from twenty to thirty glasses of beer at a sitting in one of Cincinnati's famous beer-gardens. Our churches, our ministers, our educators, temperance people and temperance workers, including the mothers of our land, are now expected to kneel, and bow themselves down in the dust, while this man Cox, this agent of the brewers, this man who drinks to the extent mentioned above, coolly and calmly walks over us. Will the State of Ohio put up with this thing longer? If it is going to wake up our good people and *bring them to life,* there may be a providence in it. God forbid that such a state of affairs should exist any longer. If nothing but a civil war can free our State from this bondage and thralldom to the liquor interests, then let us have war. May God be praised, however, that an awakening and a scratching of names at the ballot-box may take the place of war.

THE "SIMPLE LIFE."

Dear Friend Root:—I have never yet come to the place where I did not consider the expense of an article before purchasing. Not many years ago when I visited the West I went into the dining-car to get my dinner. I ordered a piece of chicken-pie, baked potatoes, and a cup of coffee. Then, as you know, bread and butter, sauce, and pickles are always thrown in, and for which I paid 40 cts. How much more would one wish to make out a good square meal when real hungry? The gentleman who sat opposite me at the table paid $2.00. He did not eat one-fourth of what he ordered, and I doubt if he felt any better satisfied than I did. I think I heartily agree with you that this is not only foolish but wicked.

Savannah, Ohio. W. C. GAULT.

Friend G., I have so often had almost exactly the same experience in dining-cars that I begin to think it is the rule rather than the exception to pay for a great lot the diner does not want and can not use. Perhaps some who read these pages may consider you and me penurious, and say we make a fuss about trifles; but the thought of so many people in so many parts of the earth who are actually suffering for nourishing food is constantly before me. While on this subject I wish to mention another thing that I omitted in my former talk. People all around me, and I rather suspect all over the world, are constantly purchasing things that are soon to be laid aside, and are only rubbish in the way. Of course, you can make a sale or advertise things you do not want; but a great many do not wish to go to the trouble of doing this. It is a little out of fashion with many to "dicker" or barter. Well, in view of this I am of late very careful about purchasing things. I say to myself, "Now, old fellow, do you really need this? and will you make some *use of it* right along?" Mrs. Root and I have talked the matter over; and when we get hold of something that pleases us, and is in constant use every day, we say to each other, "There! that investment is a good one. It has paid for itself already, and now I have learned how to use it I would not be without it."

Oh, yes! there is just one thing more I wish to say. Mrs. Root says that door that was put in last summer, making a short cut (see page 1029) from the kitchen to the pantry, is worth to her one thousand dollars—that is, she would not have the door taken out and go on with her old way of doing work for the sum of money mentioned. Now, friends, look over your home and see whether there is not a chance for you to make a "good investment" in the way of short cuts to save the dear wife or all the rest of you useless steps.

---

* Once more let me quote from the *American Issue:*

OFFICIALS RUINED BY STRONG DRINK.

In 1809 Thomas Jefferson made the following strong utterance on the liquor traffic: "The habit of using ardent spirits by men in public office has occasioned more injury to the public service and more trouble to me than any other circumstance which has occurred in the internal concerns of the country during my administration; and were I to commence my administration again with the knowledge which from experience I have acquired, the first question which I would ask with regard to every candidate for office should be, 'Is he addicted to the use of ardent spirits?'"

THE BIGGEST

Bee-keeper AND Honey-producer

IN THE WORLD

Captain
J. E. Hetherington,
Bee-keeper, Inventor,
and Soldier

Operator of
3000 Colonies of Bees
in New York
and Virginia

The
American Bee Journal
for Feb. 23, 1905,
Tells about it

Article Written by
P. H. Elwood,
Another
Big Bee-keeper and
Friend of
Captain Hetherington

Send 10 cts. and get that number and three others of different dates; but, better yet, send $1.00 and get the old American Bee Journal every week for a whole year. It will be a good investment. Address the publishers.

The Weekly American Bee Journal for February 23, 1905, will be a

Double : Number

and will contain a long illustrated article by P. H. Elwood, giving a biographical sketch of the late Captain J. E. Hetherington, of New York State, the most extensive bee-keeper in the world. It tells in detail about his start with bees, and how he managed the work. It reads like fiction, and yet is all true. The pictures show Capt. H.; his first and last load of bees; old and new wintering-cellar; home bee yard; square-cornered straw hives; the sword that saved his life, and a picture of himself in soldier uniform. . . The

Ontario Convention Report

also occupies a number of pages of the issue for Feb. 23. There are besides, articles by Prof. Cook, G. M. Doolittle, C. P. Dadant, and F. Greiner. All the other departments are well sustained. It is a copy that will be read and preserved by any bee-keeper who gets it. Better send in your 10 cents AT ONCE and be sure to have this special number, as only a limited extra edition will be published, and orders will be filled in rotation. When the extra edition is exhausted no more can be had.

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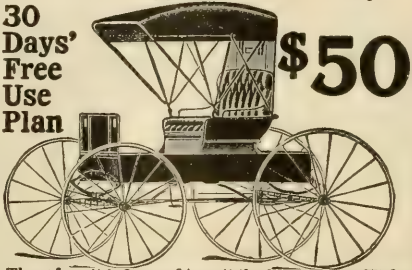

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Screwed rim wheels; quick shifting shaft couplers; long distance dust-proof axles; oil tempered springs; finest quality imported all wool broad cloth upholstering, cushion and back; spring cushion and solid spring back; top has genuine No. 1 enameled leather quarters with heavy water-proof rubber roof and curtain, lined and reinforced. Wheels, gear, body and all woodwork carried 100 days in pure oil and lead; 16 coats of paint, with highest grade of finishing varnish.

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WANTED.—To exchange ladies' $60 bicycle for typewriter. Lock Box 4, East Calais, Vt.

WANTED.—Bees, honey, peeswax; trade or cash. Incubator cheap. G. ROUTZAHN, Biglerville, Pa.

WANTED.—Combination foot-power circular saw.
S. V. REEVES, Haddonfield, N. J.

WANTED.—To exchange queens for any thing I can use. Write. S. F. TREGO, Swedona, Ill.

WANTED.—Second-hand Daisy wheelbarrow; also uncapping-can. L. M. GULDEN, Osakis, Minn.

WANTED.—To buy apiary and location.
Box 593, Tarkio, Missouri.

WANTED.—To exchange raspberry-plants for Italian queens and nuclei.
A. T. HUDELSON, Louisiana, Mo.

WANTED.—To exchange grade Holstein heifers, due to calf in spring, for bees.
C. A. SHULTS, Freeville, N. Y.

WANTED.—Slumgum or refuse from solar wax-extractor at 3 cts. per pound.
YOUNG'S BEE-SUPPLY HOUSE, Boonville, Mo.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—Two Dadant uncapping-cans. Must be in good condition.
F. A. GRAY, Redwood Falls, Minn.

WANTED.—To exchange Big V gold-mining stock, of Denver, Colo., and equity in Mexican Plantation Association, of Chicago, for Florida pineapple land.
C. S. DIETZ, Cissna Park, Ills.

WANTED.—Bees on shares; location good for 500 swarms; references furnished.
HOMER C. STONE, Lake Mills, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange 8-frame hives, shipping-cases, and uncapping-cans, for honey; Root's goods. O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 50-egg Excelsior incubator and brooder (used once) for honey or offers.
H. C. DRIVER, Route 1, Beech Creek, Pa.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

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WANTED.—Assistant apiarist; state age, experience, and wages; May to October.
W. HICKOX, Berthoud, Col.

WANTED.—Young man, preferably one with some experience, as assistant apiarist for four to six months; 600 colonies; latest methods. State age, experience, and wages desired, all in first letter; give references; no tobacco, etc.
E. F. ATWATER, Box 37, Meridian, Idaho.

WANTED.—A young man to take charge of 240 stands of bees in Wewahitchka, Calhoun Co., West Florida. Must understand taking comb honey. Want best of references—prefer recommendations from A. I. Root Co.
S. S. ALDERMAN, Wewahitchka, West Florida.

WANTED.—Man of good habits, with a little knowledge of bee-keeping, to assist in work on home and out apiaries as well as farm. Give references and state experience. CHAS. STEWART, Sammonsville, N. Y.

WANTED.—A young man who understands bees, to take charge of the Watson Ranch apiaries at Kearney, Neb. ROY A. WILSON,
45th and Cameron Sts., Omaha, Neb.

Situations Wanted.

WANTED.—Employment in a California apiary; have reared queens extensively; 12 yrs.' experience; references. B. FARMER, 414 Fifth St., Portland, Ore.

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WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

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FOR SALE.—White sweet clover, new seed, 4 cts. a lb. in 50-lb. lots. M. W. HARRINGTON, Williamsburg, Ia.

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FOR SALE.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. REEVES, Perch River, N. Y.

FOR SALE.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Fox hounds and puppies. Hovey strain. Each one guaranteed. Enclose stamp for prices.
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FOR SALE.—Oyster Shells or Crystal Grit, 60c 100 lbs.; 5 bags or more either kind or assorted, 50c each. Order now. WISE & Co., Butler, Ohio.

FOR SALE.—S. C. Brown Leghorn eggs, $1.00 per 15; are from fine-laying stock.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—Gladioli bulbs. These bulbs produced the flowers exhibited at the St. Louis World's Fair for 80 days. L. F. DINTELMANN, Belleville, Ill.

FOR SALE.—Half or all of my bees, composed of 200 colonies and fixtures; all in good condition, at a bargain.
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FOR SALE.—One Barnes saw, nearly as good as new; will sell for $20. Also 18 colonies of bees in 10-frame Dovetailed hives, cheap.
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FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co.; Iowa.

FOR SALE.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
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FOR SALE.—In Ohio, 50 stands of Italian bees in Langstroth and A. I. Root eight-frame hives, now located at Batavia, Ohio; also all tools and other bee-fixtures. Will sell at a bargain. Address
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FOR SALE.—In Missouri, 60 hives of bees in first-class condition, in A. I. Root's eight-frame Dovetailed hives. Hive-bodies are in a perfect state of preservation. A chance to buy a nice apiary cheap. Address
H. H. CONLEY, England, Ark.

FOR SALE.—I have an extra good laying stock of Rhode Island Reds, and offer the eggs for hatching at 15 15 for 75 cts.; guaranteed strictly fresh when shipped. Orders will be filled in rotation.
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E. B. BEECHER, Auburn, Placer Co., Cal.

FOR SALE.—At the following prices, if taken before March 10th: 57 new one-story eight-frame hives, complete in flat, Root's make, for $50.00, or five for $5.00; also five eight-frame section-holder supers for 4¼x4¼x 1⅞ sections for $2.00. R. S. CHAPIN, Marion, Mich.

FOR SALE.—Rose-comb Buff Leghorn eggs. The most beautiful and best layers of any fowl in the world. Will send you a fine colored picture of these birds on circular. Ask for it. This strain of beautiful birds was originated by me. Let me tell you about them.
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FOR SALE.—Bee-farm in Grand Valley, Colorado. We have a 20-acre farm—well improved, orchard and small fruits, and 80 colonies of well-bred Italian bees—to offer at a very reasonable price. This place is 3 miles from town. Other good property for sale. Write us for full particulars. BRUNER & SHARPE, Fruita, Colo.

FOR SALE.—Two and one-half acres of land, nicely covered with mesquite trees; good five-room house; 3000-gallon steel tank full of water from the roof; located 400 yards from S. A. & A. P. depot at Karnes City, Texas; house insured for $500. Just the place for a bee-keeper or queen-breeder. To be sold at a bargain. Write or call quick, as this will be sold cheap.
UDO TOEPPERWEIN,
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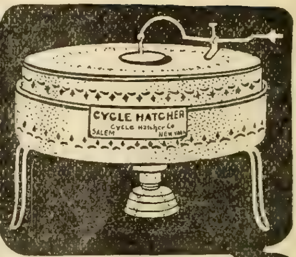

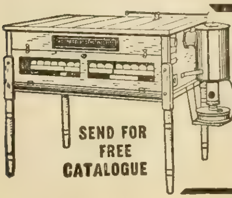
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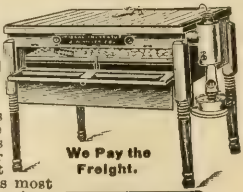
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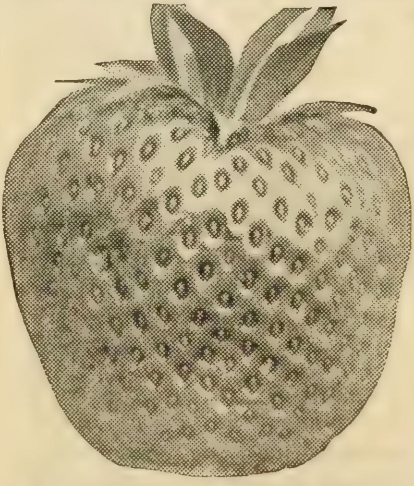

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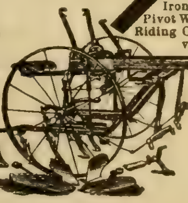

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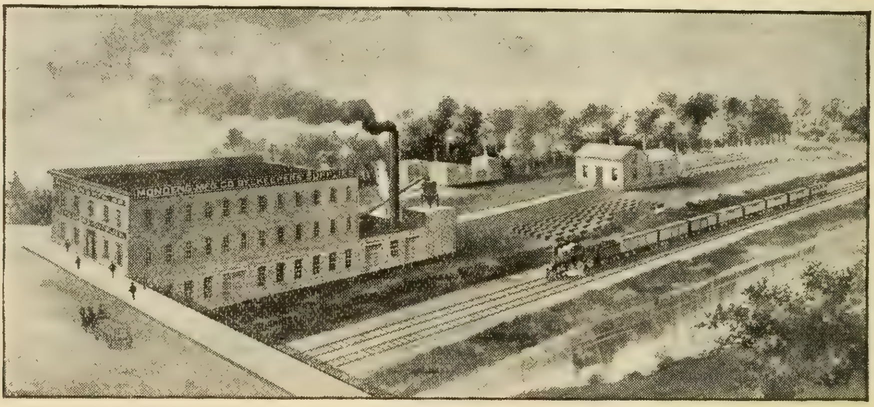
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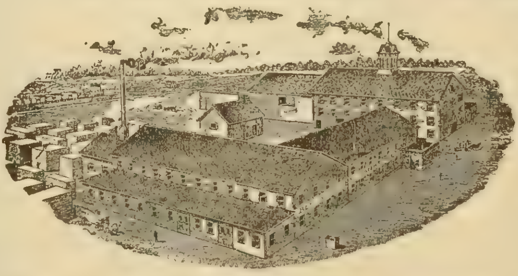

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Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

I. J. STRINGHAM,
NEW YORK,

furnishes everything in the line of Bee-keepers' Supplies. Italian Bees and Honey in season.

I have been in the supply business 14 years, and have kept bees 22 years. Have studied the East as a honey-producing country; know the honey-producers in each section, hence know the appliances best adapted, and furnish them. Our advice is yours for the asking. Catalog free.

Salesrooms--105 Park Place. Apiary--Glen Cove, L. I.

OUR SPECIALTIES

Cary Simplicity Hives and Supers;
Root and Danzenbaker Hives and Supers;
Root's Sections, Weed Process Foundation,
Bingham Smokers;
Bees and Queens in their Season;
Thirty-two-page Catalog Free.

W. W. Cary & Son, Lyonsville, Mass.

ENYART'S COMB-FOUNDATION GAUGE
gauges 18 different shapes of starters. Easy to cut 100 starters per minute. Circular free.
J. E. ENYART & SON, MCFALL, MO.

WISCONSIN
BASSWOOD
FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

BEE SUPPLIES

The Best of Everything for the Bee-keeper

G. B. Lewis Co.'s Unequaled Hives and Sections
Dadant's Comb Foundation
Root's Smokers and Extractors

ALL AT MANUFACTURERS' PRICES
Discount on all orders received before April 1.

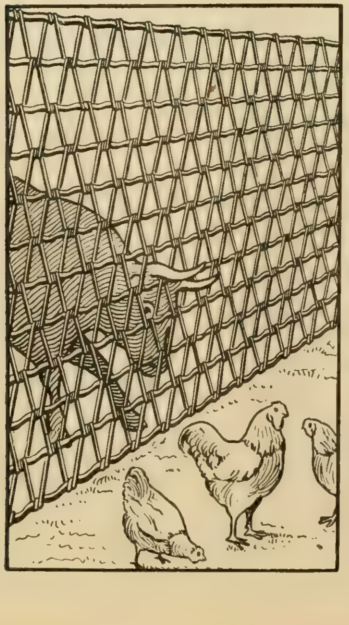
C. M. SCOTT & CO.
(Established 1899)
1006 E. Washington St., - Indianapolis, Ind.

FREE! A Subscription to Bee Journal One Year

with order of $5.00 or over. Cheapest place in the United States to buy your supplies.
One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.
Wholesale and retail. Send for free list.
W. D. SOPER, Rural Route 3, JACKSON, MICH.

For Your **Bee Supplies, Berry Boxes and Crates**
——Send to the——
SHEBOYGAN FRUIT-BOX COMPANY, SHEBOYGAN, WIS.

Coiled Spring Fence



STRONGEST AND BEST FENCE MADE.

It is made so good that all requirements of the farm are fully met. So closely woven the small pig cannot "wiggle" through. So strong the Bull cannot "faze" it. So heavily galvanized the elements cannot rust or corrode it. So durable that it is the last to yield to the ravages of Father Time. Sold on such liberal terms that a

THIRTY DAYS FREE TRIAL

Is given each customer that he may be sure he is satisfied and his money is returned to him if he is not.

Buy Direct. It saves the profit of the middleman. Our Guarantee is all that any manufacturer can give, and infinitely more than the dealer can grant. When you deal with us you **get your money back** if you are not pleased, besides it means a great saving because we sell to you at

WHOLESALE PRICES AND PREPAY THE FREIGHT.

We use nothing but **High Carbon Spring Steel Wire,** and make it ourselves that we may be sure it is good. We coil it that it may provide for **Contraction and Expansion.** We **Heavily Galvanize** it with **Commercially Pure Spelter,** to avoid rust and corrosion in all climates.

Our long experience has made us masters of fence construction and we are able to tell why we make the **strongest** and **best** fence on the market. We have a 40-page Catalog which fully describes and illustrates every style of our **High Carbon Coiled Spring Farm Fence,** which we will gladly mail to you upon request. Write for it. Address,

COILED SPRING FENCE COMPANY
Box 101 **WINCHESTER, INDIANA.**

SPECIAL NOTICES

Special Notices By Our Business Manager

GASOLINE-MOTOR-DRIVEN EXTRACTOR.

Only those who have tried it realize how hard it is to turn the crank of a six-frame extractor in service all day. With our new reversing device we are able to make an eight-frame or even larger; but to operate these large machines some other motive power is needed. We gave notice as much as two years ago that we were at work on this problem, and we are now prepared to furnish a 1½-horse-power gasoline-motor on special base, with the necessary attachments for stopping and starting, for $60.00. The price of the eight-frame Root automatic extractor is $40, making the rig complete $100; or with six-frame machine, $90.

ROOT'S NEW AUTOMATIC REVERSING EXTRACTORS.

Our automatic reversible honey-extractor is a great success. It is the invention of the foreman of our machine-shop, Mr. Frank Marbach, and is *the only one* we have ever seen that is simple in construction, positive in action, and which will reverse under motion without a slam or bang. The four, six, or eight frame machines are far superior to any thing else ever put on the market—much ahead of the old reliable Cowan of the same sizes, because they are quicker in action, will last longer, and because the work of reversing is accomplished by slight pressure on the brake-lever. It is not necessary to reverse the crank by putting one's whole weight on the same, straining the gearing, and, in fact, the whole mechanism, as was the case with some of the reversing-devices that have been offered the public, but which have never become popular. Yes, one can not only reverse without stopping, but when the reel is at rest.

The mechanism needs to be seen and tried to be appreciated. Unfortunately we were not able to get it ready for the exposition at St. Louis in time to show; but the machines will be on exhibition at most of our branch offices and agencies very soon. The price is the same as the regular Cowan. We are prepared to furnish the two-frame automatics, but can not conscientiously recommend them, as they are not as perfect in action as the four, six, and eight frame.

Special Notices by A. I. Root.

The government bulletin on lettuce is 15 cts. instead of 10, as I gave it last issue.

The Beaux Arts Mfg. Co., see advertisement in this issue, have sent me a very pretty watch-fob with my initials in gold plate, with a very beautiful queen-bee in silver, reposing on the letters. As I was in the jewelry business a good part of my life I think I may be a judge of such work. It is certainly an elegant and substantial piece of work for the amount of money they ask.

THE ANTI-SALOON LEAGUE ONCE MORE.

Temperance and righteousness have again prevailed over the brewers, and intoxicating liquors are to be kept shut out of Indian Territory for at least 21 years. May God be praised for having heard and answered the prayers of his people.

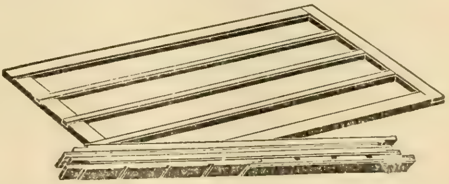
NITRO-CULTURE BY THE DEPARTMENT OF AGRICULTURE.

The price of Bulletin No. 71 (page 140, last issue) is 15 cents within the United States; outside this country, 20 cents. Address Superintendent of Documents, Government Printing Office, Washington, D. C. A circular informs us that they can not send nitro-culture outside of the United States because they are at present unable to meet the demand of applicants in this country. They are making arrangements to have the nitro-culture handled by seedsmen in the near future.

COLD-FRAME OR HOT-BED SASH, MADE OF CYPRESS.

The sash are of the regular size, 3 feet 2½ inches by 6 feet, for four rows of glass 8 inches wide. These sash are usually shipped knocked down at a low rate of freight, fourth class, and they can be put together by anybody. They are 1½ inches thick, outside bars 2½ inches wide, and inside ones about 1¼. The bars are grooved to slip the glass in place. If a light of glass is broken, move them up close and slide another in from the bottom end.

Price of one sash, in the flat, for sample, without glass, 80 cents; 5 in the flat, 75 cents each; 10 in the flat, 70 cents each. Glass, 8x10, just right for the above, $2.40 per box of 90 lights; 5 boxes, $2.30; 10 boxes, $2.20.



Sash put up, no glass or paint, 10 cents each extra; 10 cents each extra for each coat of paint, and $1.15 each extra for glass set in place, making the sash put up, painted two coats, and filled with glass, at $2.10 each in lots of 5. The risk and charges are so much more shipped put up with glass that we do not recommend this way. We can not well pack less than 5 safely.

We would not advise shipping less than 5. If you take our advice you will have all your glass sash shipped in the flat. Put up complete they will have to go as first-class, and some roads rate them as double first-class. We can ship glass and sash in flat from our Chicago and Philadelphia warehouses, and from Medina, complete or K. D.

A LOCOMOTIVE ENGINEER'S HIGH-PRESSURE GARDENING; CONCLUDED FROM LAST ISSUE.

Mr. Root:—I am glad you liked the apples. I am sorry I did not send more McIntosh. I thought you would have them in plenty, and put in only a few to show you what I called a particularly fine strain. I have not seen their equal at any fruit-show that I have been to. They are grown in grass that is mown with a lawn-mower once a week. The clippings are allowed to rot on the ground. I think the true lovers of flowers and fruit (or the cranks, as we are called), when they find a good thing are willing to pass it along. If you or any of your friends would like any cions from this tree, and will let me know what month you graft in, I shall be glad to send them. The Palmer Greenings are my particular favorites. My family (wife and three children) think they are the best winter apple that grows. They keep here in an ordinary cellar until April. I should like to have you eat one now, and then later try them again; and some time when you are not busy let me know what you think of them.

I have been a locomotive engineer for 21 years, but have always had a natural love for flowers and fruit; and last, but not least, my bees. I own a cottage house of eight rooms, with one-half acre of land. I have not much room for trees, so I have grafted three or four varieties on a tree. I do the work myself. When they come to bearing I shall have 18 varieties of apples, 14 of pears, and 5 of plums. I have 11 of grapes, 3 of raspberries, 8 of strawberries, blackberries, and American and English gooseberries. I raise more vegetables than we can use. I have enough celery, carrots, beets, etc., and 46 "Delicious" squashes to go through the winter; and, by the way, if you have never tried the Delicious, send to Gregory and get some seed. You will never use any other afterward. I am just comfortably outside of a large piece of pie made from one of them. I also want to call your attention to the Mignonette lettuce, if you have not used it. It is fit for a king. I have an asparagus-bed. I cut my first last spring when it was 60 cts. a bunch in Boston—rather high living. I cut about 12 bunches a week—enough for our own use.

I have about 20 rose-bushes, a Japan maple, Japan snowball, syringa, and a number of other shrubs, and a hardy hydrangea, six years old that is nine feet high and had over 200 blossoms. It was so heavy I had to brace it to keep the wind from blowing it over. I have six Crimson Rambler roses growing on a trellis made by putting three wagon-tires edgewise on a post four feet high so as to form a ball. It was handsome. People came from all around to see it. I have a Page fence around my place, covered with woodbine. It is handsome in the fall when the leaves turn.

I was just going to renew my subscription, but your kindness got ahead of me, and I will put that money into the *Youths' Companion* for the little ones.

Ayer, Mass., Dec. 12. F. P. BRIGGS.

QUIRIN-THE-QUEEN-BREEDER

OF BELLEVUE, OHIO.

Is now booking orders for bees and queens. Our northern-bred Italians are extraordinarily hardy, having wintered on summer stands for the past eighteen years right near bleak Lake Erie; queens are prolific; bees gentle and energetic workers. Safe delivery and satisfaction guaranteed. Special prices in lots of fifty or more. Free circular and testimonials. Estab'd 1888.

Prices before July 1st.	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	....	....
Straight 5-band breeders	6 00	....	....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	....
4 frs. brood, 4 frs. foundation	5 00	25 00	....

BIG IMPROVEMENTS

WE WISH to say to our bee-keeping friends and customers, that we are now making big improvements in our queen-rearing yards. Our queen-rearing capacity will be twice as large this season as it was last, as the demand for our queens has increased so that we have now employed another expert queen-rearer for this season, and have added 500 more full colonies of bees to our apiaries. And our motto is going to be more queens and better queens. We are now booking orders for spring delivery. Why not let us book yours for any amount you may want in the way of queens and bees. No matter how large or small, we will be able to fill your orders promptly from one queen to 1000, and from one colony of bees to a carload.

Untested queens from March 1st to November 1st, 75 cts. each; $4.25 for six, or $8.00 per dozen; all other months, 25 cts. extra on each queen. Tested, from $1.50 to $2.50. Breeders, the very best, $5.00. One, two, and three frame nuclei and full colonies furnished on short notice. Prices cheap on application.

We can sell you dovetailed bee-hives made of yellow pine at about half the price of white-pine goods. Get our prices. Quality and workmanship guaranteed. Send for catalog describing the six different races we breed.

THE BEE & HONEY CO., W. Atchley, Prop., Beeville, Bee Co., Tex.

GOOD QUEENS

can always be had by sending your orders to us. Untested queens, $1.00 each; $4.25 for six, or $8.00 per doz. Tested, $1.50 each. Nuclei and bees by the pound a specialty. Write for prices. Wholesale orders solicited. We fill wire orders from 100 to 300 queens to responsible parties with 10 hours' notice. Safe arrival and satisfaction guaranteed. We have Carniolan, Holy Lands, Cyprians, Goldens, and the old-fashioned three-band Italians. All reared in separate fields 10 to 20 miles apart. All the Holy Lands and Cyprians in this part of the country are from our strains and our importations. Don't fail to consider quality and our thirty years' experience. Best breeders, $5.00 each.

The Jennie Atchley Co.,

Box 18, Beeville, Bee Co., Texas.

GEORGIA QUEENS.

Dear Sir:—Inclosed find $1.50 for two Golden queens. The queen you sent me last year built up a rousing colony, and is occupying 30 Danz. frames, and so far has not attempted to swarm. A. D. TAYLOR.

Memphis, Tenn., July 15, 1904.

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS.

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. Circular on application.

W. H. LAWS, Beeville, Texas.

Try Me

and see if queens raised by a little boy, 14 years old, are not as good as any. I have been brought up in the queen-rearing yards. Untested, $1.00 each; $4.25 for six; $9.00 per dozen. Safe arrival and satisfaction guaranteed. Money-order office, Oakville, Texas.

IVES ATCHLEY, LAPARA, LIVE OAKS CO., TEXAS.

LEATHER - COLORED QUEENS

Extra good ones, carefully reared. June, $1.00; six, $5.00. Later, 75c; six, $4.00. Liberal reduction for large orders. Absolute satisfaction guaranteed.

S. F. TRECO, - Swedona, Ill.

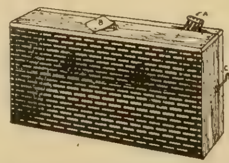
Queens at the old Stand

for 1905; 15 years' experience; orders booked now; Golden stock.

J. B. Case, Port Orange, Fla.

Don't Fool Away Your Time

Hunting queens and clipping wings to manage swarming



Do It Easier

Do It Better

by using

Dibbern's New Improved Queen-traps

Price for sample, 50 cents; 10 or more, 40 cents each; 100 or more, 35 cents each. By mail, 30 cents for postage.

C. H. DIBBERN & SON, MILAN, ILLINOIS

WANTED.—To send you two bee-journals for the price of one. Gleanings and the Rural Bee-Keeper, both for $1. Address **W. H. PUTNAM, River Falls, Wis.**

We Carry a Full Line of

Bee-keepers' Supplies

AT SYRACUSE, NEW YORK.

THE A. I. ROOT COMPANY.

Standard

POULTRY and BEE SUPPLIES

The best of every thing for
the Poultry and Bee Keeper.

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Freight Rates From Toledo
are the Lowest.

BIG DISCOUNT for EARLY ORDERS

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Sixty-page Illustrated Catalog will be out in February. Send your name for one.

◆

GRIGGS BROS.
523 Monroe St. TOLEDO, OHIO

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Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

Root's Goods
AT
Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. **Order now and secure our 2 per cent February Discount for Cash Order.** Catalog free. Correspondence solicited. . . .

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

SPECIAL PRICES for February orders. Give me a list of goods wanted, and I will quote you prices.

SATISFACTION.

The kind that comes by using the best hives, the best sections, the best of everything (Root's Goods).

GEO. A. HUMMER,
BRAZELIA, MISS.

Our Facilities

Baltimore & Ohio Railroad—Washington and Metropolitan Branches.
Chesapeake & Ohio Railroad—Washington and Gordonsville Division.
Pennsylvania System—Baltimore and Potomac Railroad.
Southern Railway—Main Line.
Washington Southern Railroad.
Randall's Potomac River—Tri-weekly service between Washington and Parkham's Point, Va.; Wirt's Wharf, Va. (daily) Glymont, Md.
Norfolk & Washington Steamship Co.—Daily service between Washington and Norfolk; connects also with Old Dominion Line (Trans-Atlantic) and Clyde Line (coastwise and West Indian.)
Potomac River Line—Bi-weekly service between Washington and Baltimore.
Mt. Vernon & Marshall Hall Steamship Co.—Daily service (passengers only) between Washington and Mt. Vernon, Va.; ferry to Alexandria, Va.
Wash., Alexandria & Mt. Vernon Electric Line.
Adams Express Company.
United States Express Company.
Southern Express Company.

The A. I. ROOT Co.,
1100 Maryland Avenue, S. W.
WASHINGTON, D. C.

A Solid Foundation Means a Solid House.

Dadant's Foundation

Means Solid, Straight, Well-built Combs. ☙

110,000 Pounds

Used by Bee-keepers in 1904.

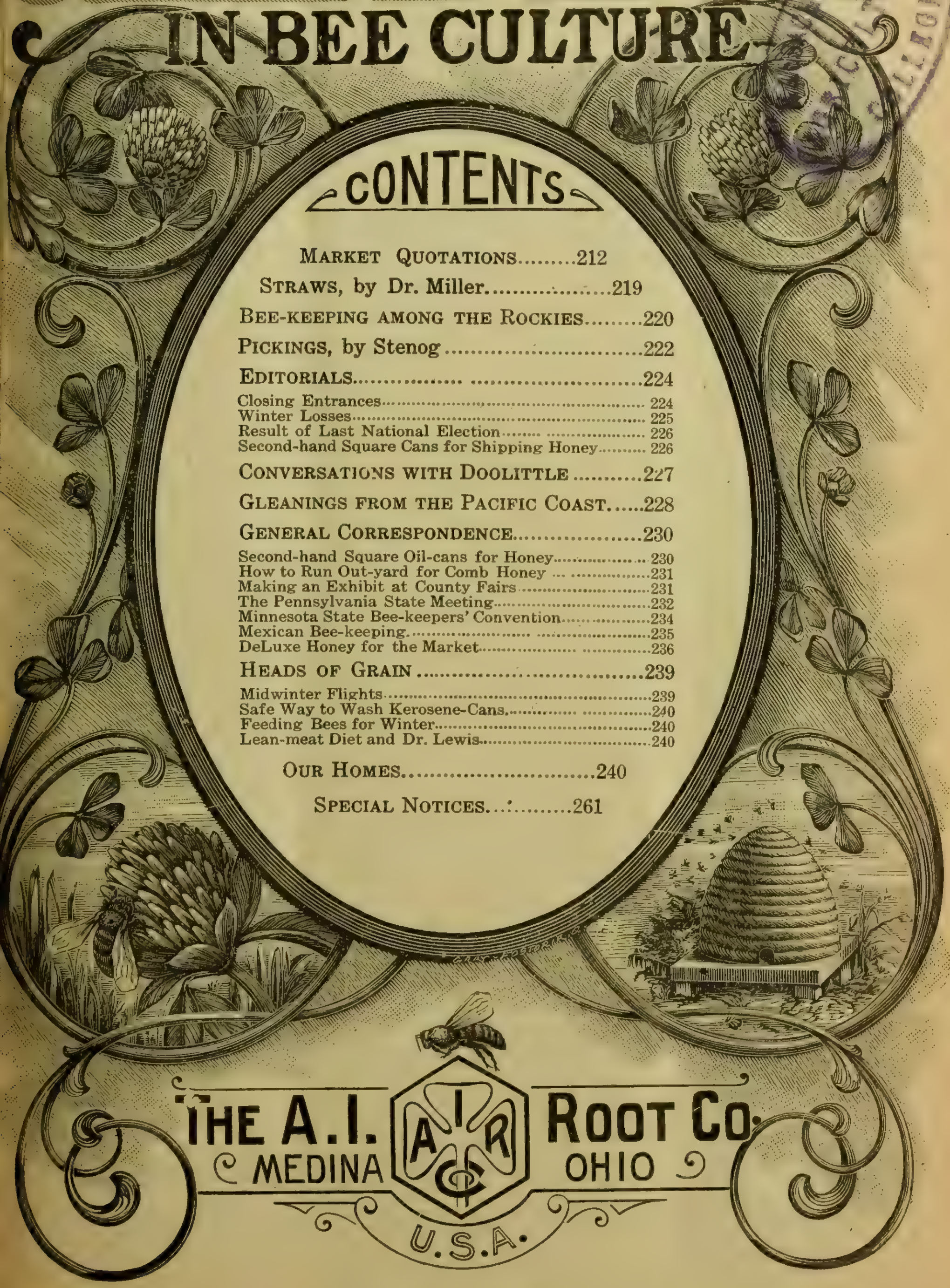
Satisfaction Guaranteed.
Bee Supplies of all Kinds.
Beeswax Wanted at all Times.

Send for our 1905 Catalog.

DADANT & SONS, Hamilton, Ill.

Volume XXXIII MARCH 1, 1905 Number 5

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

Special Bargains

IN

Hives, Supers & Other Supplies

DURING THE

Next 60 Days

SEND US A LIST OF GOODS WANTED, GIVING QUANTITIES.

BEESWAX WANTED.

A. G. Woodman Co.
Grand Rapids, Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

George E. Hilton, Fremont, Mich.

The Michigan bee-keeper is the man we are interested in, whether he has one swarm or five hundred. If you are that man, we are talking to you.

The goods we sell are made in Ohio. You live in Michigan,

The point is this: We cut out the distance, and bring your goods home to you--and they are Root's Goods too.

Just now we are interested in getting our catalog into the hands of every Michigan bee-keeper. It is YOURS for the asking.

Your order to us, small or large, means prompt service and Root's Goods.

We are agents for the Danz. Hive--the comb-honey hive.

Beeswax wanted.

Write to

M. H. HUNT & SON,
BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

COMPLETE STOCK FOR 1905 NOW ON HAND.

Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CHICAGO.—Honey business is not brisk, and consequently prices are none too firm. A good deal of pressure is being made by producers as well as dealers upon their correspondents to move consignments. Fancy grades of white comb bring 12½@13; No. 1, about 12, with some not desirable at 11. Extracted white, 6@7; amber 5½@6½, the price being governed by quality, flavor, and package. Beeswax, 30, if choice and good color.
R. A. BURNETT & Co.,
Feb. 20. 199 South Water St., Chicago, Ill.

CINCINNATI.—The comb-honey market has been a drag the last month—this caused the holders to offer extra inducements in prices. Prices obtained are as follows: No. 1 fancy water-white comb, 12@13; No. 2, 10½@11½. Extracted is sold as follows: White clover, in barrels, 6½—in cans, 7½@8; amber, in barrels, 5¼@5½—in cans, 6@6½. Beeswax, 27.
C. H. W. WEBER,
Feb. 20. 2146-8 Central Ave., Cincinnati, O.

KANSAS CITY.—Market on honey at present is very low, the best comb selling at $2.00 per case of 24 sections; no demand for amber or the cheaper grades. Extracted selling at 4½@6½, according to quality of the stock. Beeswax, 28.
C. C. CLEMONS & Co.,
Feb. 20. Kansas City, Mo.

ST. LOUIS.—This market has not undergone any change since our last. It is as dull as ever. Quotations are nominal, as follows: Fancy white comb honey, 13½@14; A No. 1, 12½@13; No. 1, 10@11; broken or leaking honey, 7@9. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5½@6; Southern in barrels, 5@5½. Beeswax, prime, 28½ per lb.
R. HARTMANN & Co.,
Feb. 20. 14 So. Second St., St. Louis, Mo.

DETROIT.—Demand continues very light, with little chance for improvement in the next two weeks. Prices rule about as follows: Fancy and A No 1, white, 13@14; No. 1, 12@12½; No. 1, dark, 10½@11. Extracted, white clover, 6½@7. Beeswax, 26@27.
Feb. 22. M. H. HUNT & SON, Bell Branch, Mich.

SAN FRANCISCO.—Honey, comb, 10@12. Extracted, water white, 7; light amber, 6; dark amber, 5. Beeswax, 28@29.
ERNEST SCHAEFFLE,
Feb. 23. Murphys, Cal.

BOSTON.—On account of the very light demand, stocks of comb honey continue to accumulate, causing a weaker market. We quote as follows: Fancy white, 15; No. 1, 14. Extracted, 6@8, according to quality.
BLAKE, SCOTT & LEE,
Feb. 23. 31-33 Commercial St., Boston, Mass.

SCHENECTADY.—There is an improvement in the demand for both comb and extracted at reduced prices. No. 1 white, 13@14; No. 2, 11@12; buckwheat, 10@11. Extracted light, 6½@7; dark, 5½@6.
CHAS. McCULLOCH,
Feb. 20. Schenectady, N. Y.

BUFFALO.—There is no improvement in our honey market since our last quotation. Considerable stock in the country, and think there will be a lot carried over into next crop. We quote fancy white comb, 12½@13; A No. 1, 12@12½; No. 1, 12@12½; No. 2, 10@11; No. 3, 9@10; No. 1 dark, 10@11; No. 2 dark, 9@10. Extracted, white, 6½@7; amber, 6@6½; dark, 5@5½. Beeswax, 28@30.
W. C. TOWNSEND,
Feb. 11. Buffalo, N. Y.

PHILADELPHIA.—On account of the very bad weather the sales among the retail trade in honey have been slow. Quite a good many shipments have been arriving from distant points, and the market at the present time is overstocked. We quote fancy white, 15@16; No. 1, 13@14; amber, 12. Extracted, white, 6½@7; amber, 6. Beeswax, 28. We are producers of honey and do not handle on commission.
WM. A. SELSER,
Feb. 20. 10 Vine St., Philadelphia, Pa.

CINCINNATI.—The demand for honey at the present time is like business—frozen. Nevertheless, we are looking forward to a brighter future. We quote amber extracted, in barrels and cans, 6@6½; white clover, 7@8. The conditions of the comb-honey market are aught but encouraging, owing to the vast amount of western comb honey that is being consigned at almost any price. We quote: Fancy white comb at 12@13, with but few sales. Beeswax, 27.
THE FRED W. MUTH CO.,
Feb. 17. 51 Walnut St., Cincinnati, O.

FOR SALE.—Extracted honey, clover or basswood, in kegs or cans. Write for price. Sample, 8 cts.
C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Choice ripe extracted honey gathered from clover, basswood, and fall flowers, in 60-lb. cans, at 7c.
CHAS. D. HANDEL. Savanna, Ill.

FOR SALE.—10,000 lbs. fancy extracted honey, 6c per pound in 60-lb. can; 6½c in 12-lb. cans; sample, 10c.
W. D. BUNTING, Uvalde, Texas.

FOR SALE.—1000 pounds white comb honey at 13 cts. Speak quick.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

GOOD DISCOUNTS ON EARLY ORDERS
COMPLETE STOCK OF BEE SUPPLIES—LEWIS CO.'S AT FACTORY PRICES
MUTH SPECIAL HIVE THE BEST DOVE TAIL MADE
SEND FOR CATALOG.
WE ARE ALWAYS IN THE MARKET TO BUY HONEY—SUBMIT PRICE
THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO.

For Sale.—1000 lbs. white extracted honey in 60-lb. cans at 7¼ cts. W. D. Soper, Jackson, Mich.

For Sale.—6000 lbs. clover and basswood honey in 60-lb. cans. C. J. Baldridge, Kendaia, N. Y.

For Sale.—Extracted honey from alfalfa at 7½c per lb. Morris Mercantile Co., Las Animas, Colo.

Wanted.—New crop white comb honey. Describe what you have, and state price.
Evans & Turner, Columbus, O.

Wanted—Comb and extracted honey. State price, kind, and quantity. R. A. Burnett & Co.,
199 South Water St., Chicago, Ill.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
Chas. Koeppen, Fredericksburg, Va.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted—Beeswax. We are paying 27c cash or 29 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
The A. I. Root Company, Medina, Ohio.

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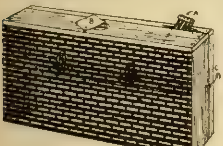
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

Don't Fool Away Your Time

Hunting queens and clipping wings to manage swarming



Do It Easier
Do It Better
by using
Dibbern's New Improved Queen-traps

Price for sample, 50 cents; 10 or more, 40 cents each; 100 or more, 35 cents each By mail, 30 cents for postage.
C. H. DIBBERN & SON, MILAN, ILLINOIS

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.
S. F. TRECO, - Swedona, Ill.

Queens——Queens

You will see I have moved. I am prepared to furnish queens by return mail. I have 100 nuclei wintered over, and am in the best fix to fill all orders in rotation of any queen-breeder in the South. I rear five-banded and three-banded only. Tested, for March and April, $1.25; untested, 85c. Give my bees a chance to please you.
Daniel Wurth, 1111 N Smith St., San Antonio, Tex.

MY LATEST BOOK ON QUEEN-REARING

Contains a sure cure for pickle brood, black brood, and bee-paralysis. Book sent by mail for 50 cts. Send for price list of Adel queens and bees. Four-page leaflet on queen-rearing free. **Henry Alley, Wenham, Mass.**

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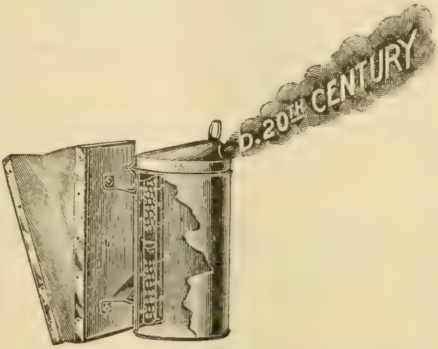
...$1.00 Smoker...

Guaranteed to suit or the dollar back.



Buy the D 20th Century Smoker, it is the best. The construction is so simple and complete, it is **sure to please, can not clog**, smokes three to five hours at one filling. $1.00 each; three, $2.50, by express or with other goods; by mail, each, 25c for postage.

F. Danzenbaker,
Miami, - - Florida.

The STANDARD Honey Cutter

Illustrated on page 238 of this issue is manufactured and sold by

The CLEVELAND GALVANIZING WORKS COMPANY,

Cleveland, Ohio.

Write for catalog, price, and particulars.

Gleanings in Bee Culture

[Established in 1873.]

Devoted to Bees, Honey, and Home Interests.

Published Semi-monthly by

The A. I. Root Co., Medina, Ohio.

A. I. ROOT, Editor of Home and Gardening Dep'ts.
E. R. ROOT, Editor of Apicultural Dep't.
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Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

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We have just received a copy of the February number of THE FRUIT-GROWER. This number is of special interest to fruit-growers, having some very valuable articles on spraying. The March issue promises even greater value being a special "Gardening" number. See announcement made by the publishers on page 248 of this issue.

The writer has before him a copy of the Dollar-making Incubator proposition. This is the title of the booklet recently issued by the Iowa Incubator Company, of Des Moines. It contains an entertaining discourse on the profits of poultry-raising in its various branches. Any one who has studied the poultry proposition with a view to engaging in it at some future time, or any one who is now interested in the business, would do well to secure a copy of this book. The publishers send it upon request. Please mention GLEANINGS IN BEE CULTURE when writing to the Iowa Incubator Company, of Des Moines, Iowa.

The attention of our readers is especially called to the advertising of the Bateman Mfg. Co., Box 120, Grenloch, N. J., on page 247 of this issue. The "Iron Age" farm and garden implements have a worldwide reputation. Only a few weeks ago this firm received an order for twelve carloads of their goods from one concern alone, which shows how favorably they are known, and what a tremendous sale they have. Any one in need of one of these tools would do well to write to the company for their catalog. They have selling agencies all over the country, and can supply their tools promptly and at low cost.

The Petaluma Incubator Factory.

Of beautiful, interesting, and valuable catalogs, the poultry and incubator men seem to be in the lead. Our attention has just been directed to that of the Petaluma, advertised on page 255.

The Superior Jury of Awards at the St. Louis exposition, awarded the gold medal to the Petaluma incubator. The Petaluma possesses features not to be found in any other machine; and everywhere, in all countries, in all climates, and at all altitudes, the same satisfactory results are obtained.

Besides the large factory and main office at Petaluma, California, branch stores are operated at 33 Market St., San Francisco, Calif., and 147 No. Delaware St., Indianapolis, Ind. A beautiful catalog can be had for writing to any of these places.

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Twenty years of successful business, with a record of continuous growth and expansion, certainly signifies something. It means that merit and fair dealing must have been back of every transaction. Twenty years ago there was established in Cleveland, Ohio, a music house by a practical music man, with a fixed determination to build success strictly on *quality;* to sell only the highest class of goods at as low a price as such goods could possibly be sold for direct to the customer, with only one small profit from maker to user.

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H. E. McMillin, Cleveland, Ohio, manufactures, imports, and retails "Everything Musical." Therefore his customers get the goods direct from headquarters with the guarantee that they will be just as satisfactory as if the customer came direct to the store and made his purchase in person. Mr. McMillin looks back over his twenty prosperous years with pardonable pride, and forward to the future for a continuation of his business. His numerous customers always have a good word for his house. Mr. McMillin makes it a point to have every customer a pleased, satisfied customer. Write to him for catalogs of any thing you may need in the music line, and you will readily understand why his business has grown to such proportions.

FARM PAPER ONE YEAR 10 CENTS

If you do not read it regularly you are not in the push. Sample free. Mention this paper.
FARMERS' FAMILY JOURNAL, Topeka, Kan.

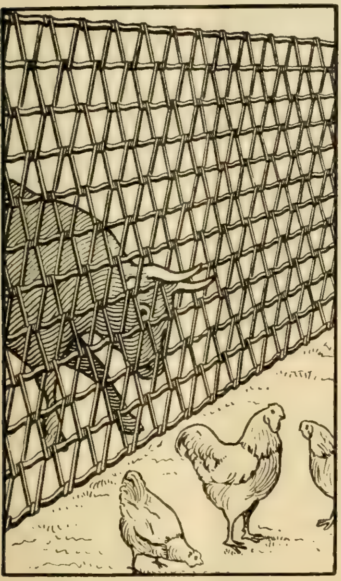
Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Coiled Spring Fence



STRONGEST AND BEST FENCE MADE.

It is made so good that all requirements of the farm are fully met. So closely woven the small pig cannot "wiggle" through. So strong the Bull cannot "faze" it. So heavily galvanized the elements cannot rust or corrode it. So durable that it is the last to yield to the ravages of Father Time. Sold on such liberal terms that a

THIRTY DAYS FREE TRIAL

Is given each customer that he may be sure he is satisfied and his money is returned to him if he is not.

Buy Direct. It saves the profit of the middleman. Our Guarantee is all that any manufacturer can give, and infinitely more than the dealer can grant. When you deal with us you **get your money back** if you are not pleased, besides it means a great saving because we sell to you at

WHOLESALE PRICES AND PREPAY THE FREIGHT.

We use nothing but **High Carbon Spring Steel Wire,** and make it ourselves that we may be sure it is good. We coil it that it may provide for **Contraction and Expansion.** We **Heavily Galvanize** it with **Commercially Pure Spelter,** to avoid rust and corrosion in all climates.

Our long experience has made us masters of fence construction and we are able to tell why we make the **strongest** and **best** fence on the market. We have a 40-page Catalog which fully describes and illustrates every style of our **High Carbon Coiled Spring Farm Fence,** which we will gladly mail to you upon request. Write for it. Address,

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PAROID ROOFING

You will be surprised at the money you save and the satisfaction you get from

Paroid Roofing

—the roofing with quality and durability in it. Don't be persuaded to buy an imitation. Get the genuine. Contains no tar; slate color; any one can lay it in any kind of weather. Complete roofing kit in each roll.

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FOR YOUR ROOFS

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Every Band in the Land

Every man in the band and everybody that blows a horn ought to know about the **"Crown Model"** — King of Band Instruments—**guaranteed for 5 years**—sent on **6 days' trial,** one instrument or full set. They are the **finest instruments made,** magnificent in design and finish, incomparable in tone and tune, representing the highest achievement of artistic skill and musical perfection, most perfect valve action known, unequalled for ease of blowing. As sole makers of this line of band instruments we stand back of every claim we make for it, and allow **6 days' trial** that you may know just what you are getting for your money. Ask for illustrated catalogue. Our immense stock comprises all the better makes of Band Instruments, and if you do not want our **"Crown Model"** we'd like to give you figures on some other line before you buy. **"Everything Musical"**—in business 20 years—means that we can save you money on **anything** and **everything** in the music line. **SECOND-HAND** list fairly bristles with bargains of every sort of musical instruments, made like new again. If you don't want **new** this list may have just the thing for you. Ask for the list to-day and any other information or catalogues that you may desire. We'll be prompt; we want to serve you in all of your musical needs. Address

H. E. McMILLIN,
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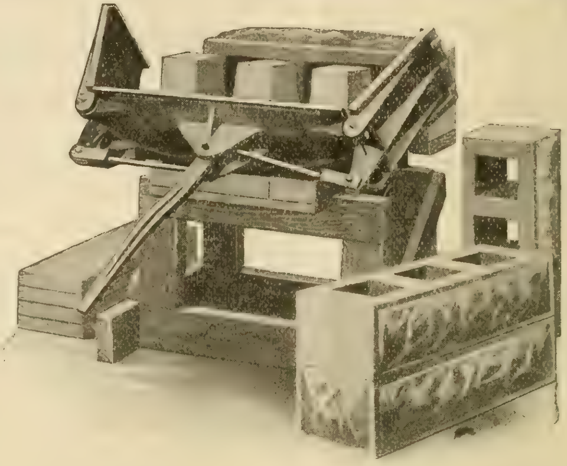
"EVERYTHING MUSICAL"



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is constantly gaining recognition as a building material. The most popular form is Hollow-block Construction.

As a result of practical work and study we are able to sell you a machine —simple, durable, easy to operate, and which makes all the blocks necessary in the construction of a building.

A building constructed of this material is **cheaper than brick and more durable than stone.**

We are operating a successful building-block plant in Medina, opposite The A. I. Root Co. *Write us for prices of machine, etc.*

Medina Concrete Co., Medina, O.

Reference, The A. I. Root Company, Medina, Ohio.

An Autograph Copy

Of Dr. Miller's Book,

Forty Years Among the Bees.

We have some copies of Dr. Miller's book in which he himself has written on the front blank page— "Cordially Yours,
C. C. MILLER."

This book is cloth-bound, 328 pages, and tells Dr. Miller's methods and management. Price, $1.00, postpaid: or the book and the Weekly American Bee Journal one year—both for $1.75. ☞ Be sure to mention "Autograph Copy" if you desire that kind.

Sample of the American Bee Journal **free**, or 5 different copies of this year for 10 cents, one of which will be the Feb. 23d copy, which is a

Capt. E. J. Hetherington Memorial Double Number.

That one number alone is worth a year's subscription.

—ADDRESS—

American Bee Journal,

334 Dearborn St., CHICAGO, ILL.

☞ The American Bee Journal is in its 45th year.

Ahead = of = Shook = Swarming

The March REVIEW is now in process of preparation, and will be out about the middle of the month. One article in this issue will be by H. G. Sibbald, of Canada, and he will describe a new system of management that promises to be away ahead of shook-swarming. It has these advantages: No shaking of the bees; no handling of the brood; no possibility of the queen being in the wrong hive; no danger of afterswarming; no increase unless desired (but easy to secure if wanted); no queen-cells to hunt up and destroy; yet the whole force of bees may be kept together the whole season, and each colony may be re-queened with a queen from a naturally built cell.

This is only a single article in one issue of the REVIEW, but it is a fair sample of the information that you are losing if you don't read the REVIEW, and what you will gain if you do read it. Send $1.00 for the REVIEW for 1905; or, if you prefer, send ten cents, and when the March issue is out a copy will be sent to you, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

$1==100 MAGAZINES EACH YEAR==$1

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Consists of yearly subscriptions to the following high-grade magazines. Each stands at the head of its class. This combination furnishes your home with plenty of good, clean, interesting, and instructive reading-matter for every member of the family at the very lowest cost.

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For forty years the most earnest advocate of all things which tend to make life on the farm more pleasurable and profitable. The only farm paper that gives its readers the best of all the news. Best of market reports.

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The oldest and best poultry paper in the world. It has improved with the years until it stands in the fore front of its class.

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For the National you may substitute Green's Fruit Grower, Vick's Magazine, Blooded Stock, Kansas City Star or St. Paul Dispatch.

Total $3.10

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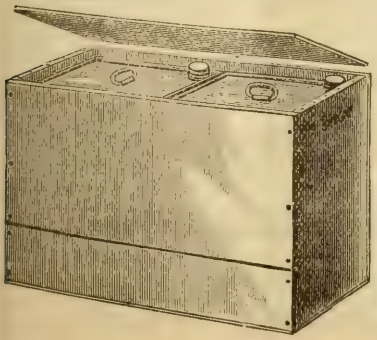
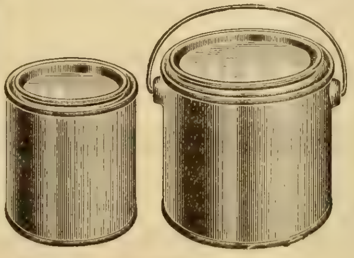
Sample copies of The Farmers' Voice free—Liberal Terms to Agents

Farmers Voice Pub. Co., 32 Voice Bldg., Chicago

HONEY CANS!





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3-lb. cans
4 3/16 diameter.........4⅞ high
6-lb. pails
5 1/32 diameter...... ..6¼ high
12-lb. pails
6 3/16 diameter.........8¾ high

SIXTY-POUND CANS

1¾-inch and 8-inch openings; are shipped in large crates or special cases as ordered. The above are the reliable "American" cans that have been the Texas standard for 4 years.

MADE ONLY BY THE

American Can Company

NEWYORK CHICAGO SAN FRANCISCO

CHICAGO CHICAGO CHICAGO

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WE take pleasure in announcing that we have made arrangements with the following well-known firm for the sale of our Bee Supplies in Chicago and vicinity. They will handle our goods in LARGE QUANTITIES AT FACTORY PRICES, and will give all orders their prompt and courteous attention. . . .

York Honey & Bee-Supply Company, Not Inc.
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LEWIS
WATERTOWN, WIS. U.S.A

ALL ROADS LEAD to CHICAGO

This Gives You the

Best Shipping Facilities in the World,

and the Best Goods in the World. . .

G. B. LEWIS CO., Manufacturers of Bee-keepers' Supplies,
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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio.

Vol. XXXIII. MAR. 1, 1905. No. 5

Stray Straws

By Dr. C. C. Miller.

Glad to see deep entrances favored for cellar wintering, page 173. Two inches is a good depth.

A dead queen is reported in *Schweiz. Bztg.*, with a hole in its abdomen out of which crept a two-inch parasitic thread-worm.

A strong colony gathers about 3 lbs. of pollen in a day—enough to fill both sides of a comb 8 in. square.—*Ill. Monatsblaetter*. No wonder combs become pollen-clogged when no brood is reared.

Outdoor Bees "drawn up into a mass not much larger than a good-sized snowball," page 172. Might be a trifle more definite. Boys "in this locality" make snowballs two feet through, besides some of other sizes.

H. Margiol, in *Ill. Monatsblaetter*, says that, when hauling bees to the buckwheat fields, it is a bad plan to try to cool them by spraying water on them; the temporary cooling is succeeded by greater heat from the moist air.

"The practice of sending honey to commission men was severely condemned in several of the meetings." Yet those same condemners may find times when they don't know what else to do with their honey, and will be glad to send it to some reliable commission man.

Top entrances are said, in *Apiculteur*, to increase the yield of honey 20 per cent. I can imagine that there might be some increase over hives with the entrance at bottom, and that too small for hot weather. For years I've had piles four or five stories high, an entrance to each story, and an entrance at back of cover. I can't say whether they stored more honey, but I can say that none of them ever swarmed. But it doesn't work for comb honey.

Cube sugar, running about 80 pieces to the pound, is all ready to feed bees without any melting or other preparation. Just drop the cubes over or between the frames, and there you are. So says M. Guyot in *Bulletin de la Societe des Agriculteurs de France*. Now, why is not cube sugar just the same as granulated sugar made into candy? Costs only half a cent more (by the quantity), and would save some trouble.

Speaking of ordering a lot more things than one can eat, page 190, A. I. Root says: "Perhaps some who read these pages may consider you and me penurious, and say we make a fuss about trifles." Old friend, do you know what makes most Americans go on in that wasteful way? Cowardice, pure cowardice. They're afraid of being thought stingy, and so they are wicked. And yet the best specimen of broad-minded manhood that ever lived said, "Gather up the broken pieces which remain over, that nothing be lost."

Midwinter flights have been condemned chiefly, if not solely, because the bees were uneasy afterward. I wonder if C. Davenport has not for the first time given us the explanation, page 181—also the remedy: *the bees must be returned inside of 36 hours.* Here's my best bow, friend Davenport. [It had never occurred to me that any one would ever think of keeping bees out for such a flight for more than one day. So far, Feb. 27, we have not had a good day; but the bees are more quiet this spring because the cellar-doors have been open for some time past.—Ed.]

Candy. "Do not stir, as that makes it mealy or grainy," p. 185. "Make it boil, and stir it. . . we have much more moisture in the stirred sugar candy, and we want all the moisture we can possibly have."—A B C. Now "where are we at"? [But the trouble with stirred or mealy candy is that so much of it is wasted. The granules separate and rattle down between the frames on the bottom-board, and are carried out in the spring. But say, doctor, why do bees need moisture in candy when the precipitation from their breath is sufficient to supply them with all they need? Why is not a good rock candy, half honey and half sugar, more economical, and better than any other artificial substitute for combs of sealed stores?—ED.]

REPLYING to Straw, page 11, asking "what number of bees must be reached before they will stop freezing and begin to starve?" the *Modern Farmer* says: "A normal colony, doctor, such a colony as one would expect to come safely through the winter in a cellar." Then a colony weak enough does freeze, does it? And if a *little* stronger, wouldn't it freeze with cold a *little* longer and stronger? And wouldn't any colony freeze with cold long enough and strong enough? After all, does it make any difference which way you call it? Have colonies strong, and with plenty of food within reach, and they'll neither starve nor freeze.

A RUBEROID ROOF now covers my shop. Has any one tried it for hive-covers? [This material has been recommended in our columns, but we have never tried it. If there is really rubber in its composition it will be short lived, I am afraid. We are using with much satisfaction here Carey's magnesia roofing on our barns and out-buildings. Neponset paper on our hive-covers has been on now the third season, and is still doing excellent service. I see no reason why it should not continue to do so year after year. One correspondent said he had had it in use for nine years, and sent us a nine-year-old cover in proof. The boards were somewhat rotted, but the paper was in a fine state of preservation.—ED.]

TWO WOMEN not a thousand miles from here are indignant at the statement, page 173, that the small man who has taken boarding at the residence of the junior editor has been allowed to struggle through five days of the late cold spell with never a sign of a name. They say if his folks are too poor or too stingy to afford him a name let them ship him to Marengo, and they'll furnish him two or three names of the most approved style, together with a full assortment of snugglings. [We have about a dozen names we have been considering. We were going to give him the initials of A. I. R., call him Amos Irving, but grandpa objects. We might name him after the sage of Marengo, but "Charles" is too common, his mother says. I call him, at present. "Bub" in spite of wife's protest. No, we'll board and lodge him here.—ED.]

AS usual at this time of the year we are flooded with copy—good printible matter. I do not say this because we wish our friends to stop writing, but because it explains why some matter necessarily has to be delayed. We can not always publish in the order of receipt of manuscript, as some subjects require immediate attention.

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

WHAT IS HONEY?

The definition of honey that is adopted by the chemists and law-makers is a matter of most serious concern to bee-keepers. If a definition is adopted that would declare honey that has a mixture of honey-dew impure or adulterated, there is not a bee-keeper in the land who might not at some time be brought before a court of justice on the charge of selling adulterated honey. The sources of honey-dew are so many and various that there is probably no locality where it may not at some time be produced. The fact that none has ever been noticed in a given locality is no safeguard. Next year it may be there in quantity. It may be bad or it may be good in quality. It may come at a time when nectar from the flowers is scarce, so that the bees will gather all they can of it, or it may come when the flowers are yielding so plentifully that the bees will gather little or none of it.

I believe that honey-dew is much more common than is generally supposed, and that many times it is gathered and stored by bees whose owners know nothing of the source from which it comes, though they believe it to be from flowers. Twice in my experience (once in Illinois and once in Colorado) my bees have stored considerable quantities of honey-dew, and many times I have found them working on it when it did not make much of a show in the hives. Some of this honey-dew was of very poor quality, while other kinds were very palatable, although usually rather dark in color. The point is that, in many localities at least, it is practically impossible to keep honey-dew out of the honey crop. No doubt, too, there are places where fruit-juices and perhaps other substances are liable to find their way into the honey. To say that such honey may be classed as adulterated would be to make bee-keeping a much more precarious business than it already is.

Colorado has a pure-honey law in which it is stated that "For the purposes of this act the word 'honey' shall be held to be the nectar of flowers gathered and stored by honey-bees; and it shall be held to have been adulterated when glucose, cane sugar, grape sugar, or any other substance or compound has been been mixed with or added to it or fed to bees." Now, if we are to go by the first part of this sentence many in this locality in 1902 sold as honey what would not under this act be legally entitled to that name. Yet in the latter part, and elsewhere in the act, it would seem that adulteration requires some overt act on the part of man in the way of mixing or feeding.

It might be held, though, that, even if the mixing is done by bees of a substance not the nectar of flowers, though gathered from natural sources, the seller of the product would be subject to fine. This would be a serious matter if the law should be strictly enforced, and would cause great annoyance and expense to honest producers.

No doubt it would lessen the labors and perhaps increase the importance of the chemists if a definition were adopted that would narrow down as closely as possible the question of what is to be considered as honey; but we must remember that nature does not often work on such narrow lines as to make hard and fast definitions possible. If honey were an artificial product, a definite compound, it might be well enough to allow the chemists to make definitions to suit themselves as to what should constitute honey; but as it is, it is the bee-keeper or the naturalist, fully conversant with the habits of the honey-gatherers, who should be allowed to fix the standard for honey, so far as that can be done. My definition of honey would be, "Honey is the sweet substance gathered by bees from natural sources, and stored in their combs." This might be expanded and elaborated somewhat, but I think it is fairly comprehensive. It might be more concise to say, "Honey is the liqquid gathered by bees from natural sources, and stored in their combs."

Let us hear from others as to their idea of what a definition of honey should be, and see if we can not evolve one that will satisfy the chemists without doing injustice to ourselves.

COLORADO HONEY.

The Colorado bee-keeper who attempts to market his honey in the East is apt to meet in some quarters a prejudice against Colorado honey, especially comb honey. Why this is so is hard for him to understand. He believes his alfalfa and sweet-clover honey are the finest in the world. In this he is borne out by the testimony of the majority of those who use these after a thorough acquaintance with other honeys. Why, then, this prejudice? If we try to analyze the reasons for it we find that there are two of them, one of which has a very reasonable foundation in fact, while I think the other has but very little.

Some years ago, while I still lived in Illinois, something of a crusade was started in the bee journals against the quality of sweet-clover honey. The sweet-clover honey I was producing at that time I considered to be of the very nicest quality, both in appearance and flavor; and in selling it I received many compliments, both from consumers and retail merchants, on its quality. I was puzzled to reconcile what I knew to be fact with the reported opinions of others. In looking for light on this subject I had an interesting conversation with one of the leading commission men shortly before my removal to this State. He said that both sweet-clover and alfalfa honey were objectionable from his standpoint—sweet-clover, because of its bad flavor; alfalfa, because of its lack of flavor. His theory in regard to the latter was that people bought alfalfa well at first, because of its beautiful appearance, and that they liked it well enough at first, but that, because of a lack of pronounced flavor, they got tired of it and concluded that they did not care for any more honey. In support of his contention that the flavor of sweet-clover honey was poor I was invited out into his storeroom, where I sampled some lots of sweet-clover honey that had just been received. While I did not consider their flavor at all bad, they were certainly not first grade, and the reason was very evident to me. Although it was all comb honey, it had the unmistakable taste of an unripened article.

Sweet-clover honey, when first gathered, has a rather rank unpleasant taste which becomes still more pronounced if it is removed from the hive before it is ripe, and improperly stored thereafter. This honey had evidently been kept in a cool room after its removal from the hive, and had deteriorated in consequence. Yet sweet-clover honey, properly ripened and kept, is equal to almost any thing that is produced in the line of honey.

The claim that people became tired of alfalfa honey was new to me; and in a selling-trip among the retail merchants of several cities soon thereafter I took pains to investigate this point wherever I found alfalfa being handled. I was unable to find any one who did not declare that there was no foundation whatever for this theory. My own experience since coming here confirms this. There is more honey consumed here in Grand Junction, where practically all the honey is from alfalfa and sweet clover, than in any other city of its size that I am familiar with. It is very evident that they do not become tired of it here.

In the course of my investigations, however, I learned of another objection to Colorado comb honey that had a much better foundation. This was its greater tendency to granulate in the comb than Eastern honey. I came across a carload of Colorado honey which would have to be sold for a great deal less than the buyers had paid because it had granulated in the combs. Western consumers do not object very greatly to candied comb honey, because they are more or less used to it; but in Eastern communities, unaccustomed to that sort of article, it is almost unsalable. Most people are sure it is adulterated, and those who are not do not care for it that way. On this account we find some honey-dealers, especially in the extreme eastern States, who will not buy Colorado comb honey at all, or unless it is very low in price. Now, here is a very real and stubborn fact which we must study and overcome if possible. I think the way around it is not difficult. To make clear the remedy that I propose I shall have to relate some of my own experience.

Some of the older readers of GLEANINGS

may remember that, years ago, I was a strenuous advocate of ripening comb honey by keeping it in a very warm room. I told therein how the small room in which my honey was stored was kept warm by means of a large lamp which was kept burning for several weeks in the fall, and whenever the weather was cold thereafter. Later I used a hard-coal stove in my honey-room, aiming always to keep the temperature up to nearly 100° until the honey was thoroughly ripened, never allowing it to get very cold afterward. Although it was a very rare thing for honey to granulate in the combs in Illinois, the combs were liable to crack in cold weather. Besides avoiding this, I felt that I was well repaid for the trouble and expense by the superior body and flavor of the honey and its improved keeping and shipping qualities. I will say, in passing, that I never knew more than one bad case of honey granulating in the comb in Illinois. I once bought the honey crop of a deceased bee-keeper; and when I went to get it I found that it had been stored in a cold building that was almost absolutely air-tight. This honey was all granulated solid before the middle of the winter.

In the fall of 1903 I sent ten cases of honey to the Colorado State Fair, and was fortunate enough to secure the first prize on it. Moreover, it attracted the attention of the State World's Fair Commissioners, who secured it to send to St. Louis. I felt a little doubtful about keeping it so long in good condition, but supposed it would be replaced by new honey soon after the fair opened. Soon after this our county commissioners bought of me another lot of honey for a county exhibit. I urged them strongly to wait until they could get new honey the following season; but they replied that they wanted to make an early exhibit, and that they would replace it with fresh honey when they could. I, however, secured permission to keep the honey myself until they were ready to ship it. So, after wrapping the cases carefully to protect them from dust I piled them up alongside of the furnace in my basement and awaited their instructions as to when it should be shipped.

They had got over their hurry, though; and although they were frequently reminded of it, the winter, spring, and summer passed, and it was not until a week or two before the meeting of the National convention in the fall of 1904 that it was sent to St. Louis. My first idea was to replace it with 1904 honey; but after going carefully over the honey, which had not been touched for nearly a year, I decided it would be better for Colorado to send it just as it was, and try to have the point emphasized in its exhibition that the honey was more than a year old. Whether this was done or not I do not know, as I did not go to the fair; but on one of those lots of honey I was awarded a gold medal—the only one, I believe, that was awarded to an individual exhibit of honey alone, while the other received a silver medal. Now, the honey that was sent last, that had been kept over an entire year, was in practically just as good condition as when packed the season before. It was not granulated nor in any way damaged by its long keeping. Yet this was Colorado alfalfa honey, which, we have been told, must be hurried to market before the weather gets cold, in order to have it sold before it granulates. If Colorado honey a year old is good enough to be awarded the highest prize at a world's fair, is it not rather the fault of the management than of the honey if it can not ordinarily be got to market without any danger of granulating before it has been consumed? If there is any place on this earth where honey ought to ripen thoroughly, without any particular attention, it would seem to be the arid region of Colorado. Yet even here it seems to be necessary to use special care in regard to the place where the honey is stored in order to have it keep in good condition and stand cold weather without cracking and granulating. If you can utilize the summer sun to ripen it thoroughly after it is taken from the hives, well and good. But if you can not do this by natural means, you should do it artificially. In either case, if you have any regard for the fair fame of Colorado honey and for the future of your honey market, see to it that, as long as your honey remains in your hands, it is stored in the warmest and driest place you can find to keep it in. We can not control the conditions in regard to our honey after it leaves our hands, but we can do much to insure its reaching the consumer in good condition by a thorough preparation before we sell it.

In order to prove my position more thoroughly, I am trying the experiment on a larger scale, and have a considerable quantity of comb honey in an upper room of a furnace-heated house, which I expect to be in just as good condition next September as it was last.

Grand Junction, Col.

Pickings from Our Neighbors' Fields
By
"Stenog."

Stenog is short for one who writes
Something some one else indites;
But the one we call "Stenog"
Needs no aid to make *his* pen jog.

I rather suspect my good friend Dr. Webley, of Santa Rosa, Cal., got the above off at my expense, although Dr. Miller betrayed the secret.

* * *

Mr. S. J. Baldwin, one of the best-known bee-men of England, died in this country, at Elizabeth, N. J., on the 30th of last December. During his sojourn on this side of the ocean he made a visit to Medina which will be long and pleasantly remembered. He was 73 years of age. He was stunned by a stroke of lightning several years ago, since which time his health has steadily declined. The *British Bee Journal* gives a very interesting sketch of his life.

Just three days before the death of Mr. Baldwin, father Time claimed as his own one who was, if anybody could claim that distinction, the best-known kee-keeper in England, his name being familiar in his own land and America. I refer to John H. Howard, of Holme, Peterboro. The *British Bee Journal* well says, "Probably no other man in the appliance trade was favorably known to so wide a circle of bee-keepers as John Howard." He was called away without warning, by heart failure. The very warm tribute Mr. Cowan pays to Mr. Howard is fully deserved.

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Bee-keepers on both sides of the water will be interested in the following from the *British Bee Journal*.

JOHN DZIERZON.

On January 16 this venerable bee-keeper entered upon his ninety-fifth year, having been born in 1811. He has been a bee-keeper for seventy years, and has a worldwide reputation for his work in advancing apiculture. The principal scientific discovery of his was parthenogenesis—that is, reproduction without fecundation. This was known to exist in other insects in the first half of the eighteenth century, but it was in 1835 that Dr. Dzierzon commenced to think about it, and in 1842 to 1844 he made known his ideas in *Frauendorfer Blaetter*. In 1845 he published his discovery in the *Bienenzeitung*, and this drew the attention of scientists to the subject. "The Dzierzon Theory," as this was called, was subjected to the most searching investigation by Siebold, Leuckart, and others, and, although still denied by some, is generally accepted as true. The *Allgemeine Zeitung fur Bienenzucht* prints some pretty verses dedicated to this veteran, and also gives extracts from papers eulogizing him at the time of his bee-keeping jubilee twenty years ago, and mentions the honors conferred upon him. We are also sorry to hear that Dr. Dzierzon is at present unwell, and he has our best wishes for his recovery.

◆

The Superintendent of Railroads of Alsace and Loraine, Germany, has issued the following circular to his employees, which I translate from our Spanish exchange, *El Colmenero Espanol:*

> The success obtained in the cultivation of bees has induced us to recommend it warmly to our employees. Although it presents certain difficulties at first, and requires a certain degree of knowledge, yet we are persuaded that, after certain trials and several attempts, our employees will overcome these obstacles. Their efforts will be splendidly rewarded with the crop given by the bees. The installation of an apiary should be directed by an experienced bee-keeper. We would especially advise our employees to become members of the Apicultural Society, whose president and members will illustrate the subject to them, and give them suitable advice. The station masters, and especially the watchmen, should be members of these societies, with power to initiate those in their charge in the science of bee-keeping.
>
> The administration will accord a loan to those employees whose pecuniary position will not permit them to make a start in beos. Likewise it will undertake to plant seeds of honey-bearing flowers along the road.

The same policy has been adopted in Austria and other parts of Europe. It not only helps the employees to gain a very important part of the sweets needed in every household, but forms a more friendly bond between workman and employer.

The following is a translation of an article in *Bienenvater*, made by Fr. Greiner, Naples, N. Y. It is entitled "Bee-keeping on the Shores of the Danube; Price and Market of Honey in Vienna."

> I commenced bee-keeping in 1890 with three box hives. How I increased my apiary during the following 14 years, partly by purchase, partly by natural swarming, need not be told. During the first three years there was no honey to sell; but during the next three years the crops ran between 140 and 200 pounds from the yard. This amount was easily disposed of in my little village at 40 cents per pound. It appeared that 200 pounds was about the maximum I could find sale for in the place The bees, however, kept increasing, so did the honey crops, and soon I had a surplus of 200 pounds, yes, even 300, above what I could sell to my neighbors, and the question arose: "What can I do with it?" I put out a sign, "Honey for Sale." I advertised in the papers, putting my advertisement on wrapping-papers of the groceries; I left some honey at the stores, canvassed bakeries, drugstores, etc., and always carried samples of honey in glass vials with me, but I failed to make sale for such a *quantity of honey*. I succeeded, however, in increasing the sale in my home market by 120 pounds, and this was the limit. What now? Must I sell cheaper or reduce the number of colonies? It happened just at this time that an old schoolmate of my wife, then living in Vienna, called on us. After taking in the situation she suggested, "Bring your honey to Vienna. I warrant you a sale of five pounds in the house where I live." This was considered, and after a few days my wife went to Vienna and took five pounds of honey with her, which she had no trouble in selling at our old established price. After one week she made a second trip and took 10 pounds with her which she sold; and after four weeks more a third trip was made, and another ten pounds was disposed of. One family recommended our honey to another, till finally we about monopolized the honey market in this street, having honey customers in as many as twenty different houses. To-day, after five years of persistent efforts, my wife has sold, from June 16 to Dec. 10, as much as 1072 pounds of extracted honey, all at 40 cents. It seemed pretty hard work for the first two years to peddle honey. It went somewhat against our grain. Still, wife was always courteously received everywhere, even invited to take meals, etc. She enlightened people, and overcame the mistrust and the notions held by the general run of people. To think that she succeeded selling nearly 1100 pounds of honey in one year!—what honey-producer could make a better showing?
>
> Vienna has a population of 1,500,000. There are 3000 streets and 3300 houses. A great deal of honey could be disposed of here in this city if the bee-keepers would go to work systematically. But one must not be ashamed of hard and honest work.

COMMENTS BY THE TRANSLATOR.

It is an undisputed fact that there is not honey enough produced, either in Germany or Austria, to supply the demand; and still the great problem is not how to produce but how to sell. European conditions are such that "honest work" is just enough humiliating and degrading so that hundreds of bee-keepers shrink from *peddling* the product of their bees. It is next to an impossibility for the city consumer to meet the producer face to face. The more refined, the better posted and educated the latter is, the greater the barrier that separates him from the first. He would be ashamed to look other people in the face if it was known he "peddled." The American may do any kind of work and preserve his dignity.

A late article of F. Dickel, in *Die Biene*, "Proposition how to make Bee-keeping more Popular and Better Paying," concentrates its force upon the sale of honey in particular. There seems difficulty in reaching consumers. On the other hand, consumers have difficulty in finding the producers of honey. They would like to purchase a pure article, but have no way of finding out where to get it. Dickel has the idea of establishing a honey-exchange, and advertising the same in the city papers, also appointing agents in the different cities to make the sales, for which service the agent is to receive nothing. A price is to be agreed upon. The publishing of articles on bees, of general interest, he also recommends.

From all the above it will be seen that bee-keepers in other lands are wrestling with the same problem we are in America, and are considering the same means to solve it.

Editorial
By E.R. Root.

There was a large amount of clover all over the country last fall. The heavy precipitation of snow, affording both moisture and protection, is a favorable omen.

In many localities it will probably be advisable to give the indoor bees an outdoor flight the first warm day, and put them back in the cellar until there is settled warm weather.

Every thing is looking favorable for a good flow of honey in Southern California this season; but it is not too late yet for an entire failure, for the rains to insure the crop are yet to come, if I understand it.

Our readers may not have observed the fact, but we are giving them right along as a regular diet 104 pages a month; and it looks now as if we should have to increase that number, at least temporarily, until the large amount of matter we now have on hand is used up.

It appears from newspaper reports that a glucose-mixer at Gloversville, N. Y., was convicted of selling honey made of 75 per cent glucose and 25 per cent honey, and was fined $50. It is said this was the first prosecution under the new anti-adulteration law. The moral effect of this first conviction will be good. Let the good work go on.

THE RUSSIAN TIN BOXES FOR CHUNK HONEY.

We are getting a good deal of correspondence in regard to the Russian tin boxes for holding comb honey, as illustrated and described by A. E. Titoff on p. 19. It is a little surprising to see how many are interested in the possibilities there presented. Not a few wish us to secure boxes for them, and just now we are corresponding with various makers of stamped ware, and hope to be able to give prices later.

HONEY MARKET UNUSUALLY DULL.

The comb-honey lies that cropped out so frequently last summer and fall, and the talk about adulterated honey in the magazines and health journals, have done their deadly work, for the honey market seems to be in a very bad way throughout the country just now. We expect, however, that conditions will improve as soon as new honey is out. There is usually a stagnation in prices at this time of year; but this spring they seem to have dropped to a lower level than usual, notwithstanding the supply of last season's crop was not large.

WINTER LOSSES.

It is too early yet to predict what the winter losses will be in the Northern States. Thus far the winter has been no severer than the previous one, and in many instances much milder. But even if it were just as severe, the bee-keepers a year ago learned a lesson on the need of thorough protection for the outdoor bees; so it is probable that such bees this winter will fare much better.

Reports show that the country between parallels 35 and 40 has suffered from the unexpected cold. As a general thing, bees in Virginia, Kentucky, Tennessee, and Missouri do not need a great deal of protection; but when an unusually severe cold wave comes, lasting a week or more, there are liable to be heavy losses. There will be no losses to speak of in the extreme southern States; and in the extreme northern States the mortality of the bees will be somewhat greater than the average, but probably not as severe as last winter.

MORE COMB-HONEY YARNS.

These are beginning to come to the fore again, and are hurting the honey market. The New York *Tribune*, one of the best newspapers in the whole country, in its issue for Feb. 19, under the head of "Saccharine Adulterations," in speaking of the various foods that have been adulterated, makes this statement:

> Honey is also adulterated in the comb, the comb being made in part of paraffine, and saturated with a mixture of glucose and syrups.

We have already written the publishers, protesting, and offering $1000 reward for proof that there is such a thing as manufactured comb honey on the market. We also referred them to Frank Benton, apicultural expert at Washington, D. C., and to the action taken at the last St. Louis convention, denying the existence of manufactured comb honey. But a mere protest from ourselves will not mean much unless *thousands* of our readers *write immediately* to the editor of that paper, presenting a courteous protest, and denying most emphatically the truth of the statement under consideration.

EXTRAVAGANCE IN ADVERTISING, ETC.

I presume our readers are all aware that I do not like the extravagant advertisements that are now getting to be so much the rage; and perhaps some that are accepted for these columns are not entirely free from this fault. We have offended some by refusing to accept their advertisement. Dr. Miller pleasantly calls our attention to some of them as follows:

> "Fifty dollars in gold for three cents" will be found in Gleanings for Dec. 15, page 1141. On a par with it, Jan. 1, page 9, is "$5000 worth of live stock to be given away." It's strange that so good a paper as the *Epitomist* should resort to that sort of thing. I have some doubt of the truth of "$5.00 worth of seeds free," page 42; and if not true, Henry Field is unwise to say

it. The same thing applies to "Given away free, poultry-punches, etc.," page 102.

You will say I'm taking a critical view. Very. The advertising pages of Gleanings are remarkably clean; but any thing beyond the strict truth in advertising is wrong, and, in the judgment of good advertisers, foolish. When a dozen advertisers say they have the best whisky in the world, how much do I believe in either? I've glanced through Gleanings, Feb. 1, and it's even cleaner, I think, than usual. Without more careful scrutiny I note only four items which might be questioned: p. 145, "The best farm paper on earth." "Best fruit paper," and, p. 146, "600,000 planters will say under oath," and "Best in the world."

We will consider the first one. It is by the *Agricultural Epitomist*, an excellent farm journal; but instead of giving $50 in gold *for 3 cents*, the real truth of the matter is, they pay the $50 to the people who hunt up subscribers to their journal. This is plainly evident if you read their advertisement all through. The $50, etc., is simply to catch the eye, and the others are much after the same fashion. I agree with Dr. Miller in thinking it unwise for Henry Field to use such an expression in advertising his field corn. Now, those who are getting old, like Dr. Miller and myself, are very apt to lack sympathy with the younger ones who may not mean any particular harm by their extravagant statements. I wish our readers, young and old, would tell us what they may think about it. By the way, I dislike to see any farm paper, or any other class journal for that matter, keep proclaiming that theirs is the "best in the world," especially when there are so many other good and praiseworthy journals. This is a Christian nation, and most of us are trying hard to be not only courteous but Christianlike to our friends and neighbors; and *some* of us (I verily believe) are striving hard to love even our enemies. It is a pretty big thing just now to claim you have the *best* of *any thing* there is in the world.—A. I. R.

THE U. S. STANDARD FOR THE PURITY OF HONEY.

Our readers will remember that, some time ago, I stated that the chemists of the Department of Agriculture, Washington, D. C., were about to revise the standards of honey from the standpoint of the chemist. The old schedules formerly used were defective in that they did not adequately nor properly describe the different kinds of honey on the market. There seemed to be a disposition on the part of the chemists to narrow the definition of honey in general to only the nectar of flowers stored in combs by bees, leaving out saccharine exudations of plants and exudations from certain insects called "aphides." We requested our subscribers to write to Prof. H. W. Wiley, at the Department, urging that the standard be broad enough to include honey-dew, for the reason that the product was liable to be present in any natural honey, whether the bee-keeper desired it or not. The point was right here: If honey-dew were eliminated or not mentioned, any bee-keeper might have his honey classed as "adulterated" by any chemist who would find a saccharine substance from aphides. The last bulletin, entitled "Standards of Purity for Food Products," from the office of the Secretary of Agriculture, gives the classification as follows:

> 1. *Honey* is the nectar and saccharine exudations of plants gathered, modified, and stored in the comb by honey-bees (*Apis mellifica*). It is lævo-rotatory, contains not more than twenty-five (25) per cent of water, not more than twenty-five hundredths (0.25) per cent of ash, and not more than eight (8) per cent of sucrose.
> 2. *Comb honey* is honey contained in the cells of comb.
> 3. *Extracted honey* is honey which has been separated from the uncrushed comb by centrifugal force or gravity.
> 4. *Strained honey* is honey removed from the crushed comb by straining or other means.

This is a vast improvement over the old schedule; moreover, it is not narrowed down to the *nectar of flowers* as was proposed. It further properly describes "extracted" and "strained" honey, but still leaves out the one thing asked for—namely, honey-dew. J. A. Green, in this issue, p. 221, proposes an excellent wording.

It is possible that we as bee-keepers did not make our representations strong enough nor soon enough. However that may be, the old definition was practically the same so far as the recognition of honey-dew was concerned—the kind of honey that comes from insects. So far no honest bee-keeper's honey has been classed as adulterated because of the presence of this product; and a chemist has advised me that probably no trouble of that kind will arise. But while we are about it, if not too late we should get the change, as there is no knowing when some innocent bee-keeper may be made the victim of an unfortunate definition. Bee-keepers know that it would be utterly impossible to keep out all trace of the product of aphides from their honey certain seasons in certain localities. There would be at most only a small amount of it —not enough to affect the flavor or the quality. Ninety-five per cent of all marketable honey, at least, would be entirely free of it. The U. S. chemists, I know, are desirous of preventing fraud on the part of the unscrupulous. They certainly do not wish to put a hardship on a few bee-keepers who some seasons can not keep honey-dew out of their honey; and we shall hope the definition as above given will not be final. It is to be hoped that Dr. Frear and his associates will see the justice of the claim of the bee-keepers, and make the definition broad enough to include any thing that *bees* gather from *natural* sources. No bee-keeper would ask more. Producers desire the standard to be rigid enough to exclude *any foreign* substance that man may put in.

CLOSE THE ENTRANCES OF BROODING COLONIES THIS SPRING.

It will be well to sprinkle a handful or two of sawdust over the entrances of outdoor colonies, both at the home and out yards. This prevents chilling drafts when brood-rearing begins to start up, and may save much brood and not a few bees. When the weather warms up sufficiently, the bees can easily push their way out. This suggestion has been given before several times in these columns, but it will bear repeating as a sort of reminder. The idea came originally from that 300-colony bee-keeper, Mr. W. L. Coggshall, of West Groton, N. Y., and I know it is good.

KARO OR CORN SYRUP; IS IT BETTER THAN HONEY?

ANOTHER friend is troubled about the way a Chicago firm is advertising karo. The label reads:

> Karo and honey look alike, taste alike, are alike. Mix karo with honey or honey with karo, and experts can't separate them. Even the bees can't tell which is which. In fact, karo and honey are identical. except that *karo is better than honey for less money.* Try it.

There is no doubt that such statements do a real damage to the honey business until the dear public learns better, as it surely will. Real honey is now for sale almost all over the world. Let the great honey-consuming world taste of some *good* genuine honey and then taste of the much-advertised karo. Why, it is really quite a joke to see it said in all soberness that no one can tell one from the other, and then wind up by saying that "karo is *better* than honey."—A. I. R.

RESULT OF THE LAST NATIONAL ELECTION.

WE have just recived a report from the Chairman of the Board of Directors, announcing the result of the vote taken last December, but which could not be counted and reported by the Secretary, Mr. Geo. W. Brodbeck, owing to his severe illness and death, as announced in our last issue. Mr. Brodbeck kept thinking he would be better, and that he would soon be able to count the votes himself and certify the result. Growing weaker and weaker he saw that it was impossible, and accordingly delegated the work to others. His wife has just sent the result of the vote to W. F. Marks, who in turn certifies them to the various bee-journals. The result of the election is as follows:

President, J. U. Harris; Vice-president, C. P. Dadant; Secretary, W. Z. Hutchinson, who received 203 votos, and Mr. Brodbeck, who had requested to be relieved, 95; General Manager, N. E. France. E. Whitcomb, R. L. Taylor, and Udo Toepperwein were elected as directors.

SENDING BEES BY THE POUND.

IN our last issue, page 168, mention is made of sending bees by express without brood or comb. When I visited Mr. J. B. Mason, of Mechanic Falls, Me., a year ago this winter he incidentally mentioned that he had been having great success in shipping bees by the pound, that his losses were comparatively light, and the express charges were considerably below those for bees sent on combs of honey and brood. He had had a good many favorable reports, and has recently sent me one which speaks for itself.

> *Mr. Mason:*—I want to write a few words to you in regard to a purchase that I made of you last year through our Mr. Fenderson. American Express agent. I had one of the pounds of bees that he procured from you, and I think that they made a pretty good showing. They filled a ten-frame brood-chamber, and stored 33 one-pound sections. Don't you think that is hustling? If I remember rightly I received them the 28th of June.
>
> Rochester, N. Y. J. L. WELLMAN.

While this may be a sort of free advertisement for friend Mason, yet it demonstrates what *can be* done; and as it has proven to be a severe winter there may be quite a trade in bees this spring. Queen-breeders and those who have bees for sale may find quite a nice little business. As stated in our last issue, our success in sending bees by express has been unfavorable for long distances. For distances not exceeding 300 miles—that is to say, where bees would not be on the road more than 15 or 20 hours—the results were fairly good.

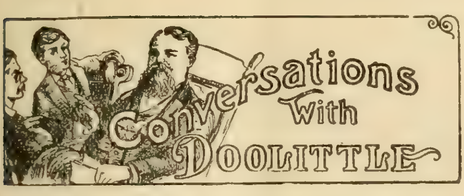
SHALL WE USE SECOND-HAND SQUARE CANS FOR SHIPPING HONEY?

IN this issue, page 230, appears a valuable article from L. B. Bell, and on page 240 another good item on how to clean second-hand cans for the storage of white or table honey; but so many times it is not done right that the taint of kerosene is imparted, ruining the honey and making it almost unfit for any purpose. A careful reading of these articles alone ought to save some of our subscribers in the West hundreds of dollars if they are large producers. Even the smaller producer can profit by their perusal.

Our experience with shipments of honey to Medina in second-hand cans has been generally unsatisfactory, just because bee-keepers are careless, or ignorant of what to do to make these old cans suitable for the purpose. Our honey-man says that too often producers will use cans that are rusty on the inside. The rust imparts its color to the honey, making it several shades darker. Cans that have once held gasoline are more liable to be rusty than those that have held kerosene; and too often bee-keepers suppose that gasoline-cans are free from taint, and therefore do not clean them.

The buyer has no objection to all second-hand cans filled with honey, provided the cans are properly treated before filling. A rusty can should not be used under any circumstances—that is, one that is rusty on the inside. The outside rust may not do so much damage; but if the rust is deep the can will leak.

There is some excuse for the *Western* producer in using second-hand cans, for the reason that freights are very high on new empty cans; but I question very much whether it is economy for the *Eastern* bee-keeper to use them except in some particular instances where the cans have not been rusted or otherwise injured. Perhaps it may be said that cans that have once been used for honey can be used again for the same purpose. This is true; but the suggestion has been made, and I believe it is a good one, to leave all such second-hand cans with the smearing of honey inside (because honey prevents rust), then wash and dry them out just before refilling.



IS OUR PLAN OF WORKING FOR COMB HONEY AGAINST NATURE?

"Say, Doolittle, is it not against the very nature of bees to have so many 'traps' by way of separators, T tins, queen-excluders, etc., in the production of comb honey?"

"Possibly. But what are you trying to get at?"

"Just this: Do not these things lessen our yield quite materially, and place the bees to a great disadvantage above what they were with the large open boxes, holding from 15 to 25 pounds, of our fathers?"

"When I first began bee-keeping comb honey was not put up as at the present day, as a part of the boxes used were made to hold 15 to 20 pounds, as you have just said, while the smallest boxes then made in this locality held fully six pounds. Some of these had glass sides while others had only a small piece of glass over an auger-hole, so that the owner of the bees could see through this glass to tell when the combs were completed, or when the honey was ready to take off. As time passed on, the thought originated in some enterprising bee-keeper's head that honey would sell better if stored in smaller boxes than those weighing six pounds, so we soon had the four-pound glass box, having four corner-posts and glass on all four sides. These were very tasty, and took well in the market, as the customer could see the honey on all four sides, the same being very attractive and captivating to all who saw it."

"I never heard of such a box. It must have been quite a pretty sight."

"It was. But bee-keepers were not content, so that the next we had was the Harbison box, or one holding three pounds, the same having glass on two sides. This box was used the same as its predecessors had been; namely, with the glass sides separating each from all others, while it was made long enough to hold only one comb, which was 2¼ inches thick when completed."

"Did you find this as good as the larger ones?"

"With this box I had very little success, for the bees seemed very loath to work in it; and when they did so they would often try to put in three combs, which made it in very poor shape for market. For this reason I decided that it was not in accord with 'nature' for the bees to be cut up in such little clusters (as the boxes were glassed before placing in the hive) and have their combs as thick as 2¼ inches. Consequently I went back to the six-pound box again, and left the matter of small boxes to others."

"And you found you were right, did you not?"

"We shall see. When the two-pound section with separators was introduced (these were the first sections in reality), I considered them as being still worse than any preceding them, for it seemed to me that the bees were divided into still smaller clusters than before."

"That is the way I reason, exactly."

"So did I; but one night while lying awake thinking on the subject I believed that I saw a difference between this way of using boxes and the old way, where glass was used on both sides of the box; for in using separators the bees were not, properly speaking, divided into little clusters as before."

"Why not?"

"Because, as the separators lacked ¼ inch of coming within reach of either the top or the bottom of the box, the bees and warmed air could pass from one to the other, to a certain extent, just the same as if no tin were there. But I feared that the tin would be a hindrance after all, so I went slowly the first year."

"What was the result with those you tried?"

"Greater than from hives worked in the old way, on an average; but as I used only a few hives I feared I was not sure in the matter, so I tried only about double the number of the year before, the season following, working the rest of the apiary with the six-pound box as before. At the end of that season I found that the sections with separators gave me the largest yield again, and the combs in these sections were simply perfect, and sold in market for two to three cents per pound more than did the six-pound boxes."

"Well, from that I suppose you adopted the sections with separators for the whole apiary?"

"No. I still had fears in the matter, so the next year I worked about half each way; but when fall came, and I found that sections were still ahead as to yield, and the same as to price, I could hesitate no longer, and adopted sections entirely for the future."

"Do you still use the two-pound sections?"

"No."

"Did you find that the bees worked as well in the one-pound section with separators as with the two?"

"Yes. But I was very loath to make this change, not so much on account of fearing that the bees would not do as great work in them as because this change would very nearly, if not quite, double the work of getting a thousand pounds of honey ready for market as was required with the two-pound sections. There was double the number to make, handle, scrape the propolis from, and crate; and I never could see aught but a mistake, on the part of bee-keepers, in rushing into these one-pound sections *in advance* of any call for the same from the consumer. It was simply a matter of seeing to how much greater an extreme one could run than his predecessor. And this craze went so far that some put forth a half-pound section, and cried 'Eureka!' over it. Mind you, the *bee-keepers* were doing this—making themselves four times the work of the past, that one could get a little ahead of the other on a small-sized section, without a single consumer asking them to go into such folly of quadrupling their work. This has always been one of the wonders to me."

"But the half-pound section did not come into general use, did it?"

"No. The bees 'kicked' against being cut up into quite so small clusters, and would not work to so good advantage as in the pound section, and so all seemed to settle down on the latter; and after the consumer got used to these small pound sections the call for two-pound sections ceased although there were some in New York city that called for the latter some time after they ceased to appear in market."

"Well, if the bees kicked on the half-pound why not on the pound and on the two-pound, to a proportional extent?"

"It would seem that they should; but from practice I find that, so far as the yield of honey is concerned, as much can be produced in these smaller sections as in any thing larger."

"Do you still use tin separators?"

"Yes."

"But is not the claim made that fences are better?"

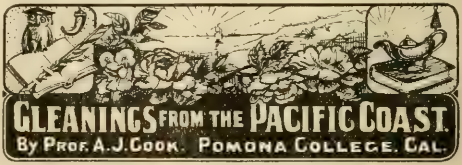
"Yes. Theory argues along the same line that you are doing, that all the 'traps' used in modern bee-keeping are a hindrance to the bees; and so the fences have been put forward to overcome this partially by allowing the bees to pass through between the boards, and thus allow of a greater circulation of heat and bees than was possible with the old whole-tin separator."

"And does this not prove correct in practice?"

"Not with me. If it did, the Betsinger arrangement, with wire cloth having meshes of a size to admit bees freely, used as separators, should as far surpass the fences as daylight does moonlight; but after a thorough trial of both, I can not see enough in favor of either, over and above my old tin separators, which have been in use since the latter seventies, to pay for an exchange. Yea, more! I can not see a particle of difference as to yield, perfect capping, or perfect filling, in favor of either, when mixed up in any super on the same colony, or, under like circumstances, with like colonies. If a colony is in good condition to produce *fancy* comb honey with one of the plans, it will produce equally nice with either plan. But I am well aware that theory, and reasoning from *man's* standpoint, would say that the greatest success would be given where the wire cloth was used, as with this the bees are inconvenienced, apparently little, if any, more than they were in the days of our fathers with their 25-pound box."

"Well, I am surprised at this. But how about the queen-excluding honey-boards?"

"When these first came before the public I tried them slowly, as I did the sections with separators, using more and more each year, till, so far as I am able to see, I can say that, with me, and in my locality, they do not decrease my crop of comb honey. But I am not speaking for others, only to advise them to do as I have done in testing the matter, if they think there is a chance that, in their locality, these would not work the same. The old saying, 'Prove all things, hold fast that which is good,' is as valuable to you as to any one, and as good to-day as it ever was; and if you have doubts in this matter, this is the thing for you to do. However. he who can commence where the best bee-keepers of to-day leave off has the advantage of those who have gone all the way proving these things for themselves—at least their financial success may be greater.


GLEANINGS FROM THE PACIFIC COAST.
By Prof. A. J. Cook. Pomona College, Cal.

GLEANINGS FROM THE PACIFIC COAST.

If I need to make any apology for this heading, I will just say that GLEANINGS from its start has always interested me very much, and I acknowledge to a partiality toward the word. The word is also quite appropriate, as I propose that these notes shall be gathered up from some of the best experience and practice of our Pacific Coast bee-keepers. I shall be very grateful to any who may contribute to these gleanings from the best pages of their experience.

FOOD OF BEES.

I was surprised to see the statement regarding the large amount of proteids to be found in honey as given in one of Dr. Miller's Straws. I suppose it was an error of the types. It would be very rare indeed to find more than a fraction of one per cent of proteid elements in any sample of honey. I quite agree with the editor that this proteid in honey is entirely unnecessary. We know that it is the work of the stomach-mouth, that interesting organ at the lower part of the honey-stomach, to remove the pollen, the only source of proteid in honey, from the nectar before it is stored in the comb or passes to the true stomach. I am sure that all experience shows that bees winter just as well if not better on honey from pure sugar syrup as that which comes from nectar gathered from the flowers. The natural source for proteid food is in the pollen, or bee-bread, and the bees need not get this from the honey. Indeed, I believe it were better if all of the proteid were removed from the honey. That it is practically removed is certainly true.

WATER FOR BEES.

We are all aware with what avidity our pets of the hive seek the watering-trough, the brooklet, or even less attractive places, where they may sip the needed water for their sustenance. I presume many have wondered what this water is for and where it goes to. Do the bees take it for their own immediate nutrition, or do they carry it to the hive? I believe there is little doubt that it is taken by the bees for their own immediate use. It is in hot weather that the bees visit such places, and they likely need water just as other animals need the same. In the work of the body, water is all-important. The bees secure this at the pond or rill. We know that, in the case of the higher animals, water, when taken into the digestive canal, passes very quickly into the blood. I presume that bees are no exception. I doubt not that examination would show with bees, as with other animals, that, in a trice, after the water is sipped into the stomach, it has been absorbed or passed through into the blood.

Some have argued from the fact that bees are often seen around urinals that salt is necessary for bees. While I do not think that salt would be harmful, and very likely in promoting absorption would be valuable, yet in the case just mentioned it is probably the water and not the salt that attracts the bees. It proves the rather that salt is not harmful.

METABOLISM.

This may be a new word to bee-keepers, but it is a good word, and one the meaning of which should be known to us all. By metabolism we mean the work done in the body, or the functional work of an organism. We can not use any organ without resulting breakdown of tissue. It follows that the tissue must be built up. When the breakdown is more rapid than the rebuilding, then we become tired. During the night the building exceeds the tearing-down, and so with the morning comes refreshment and new vigor for the day's work. This whole process of tearing down and building up, consequent upon functional activity, we call metabolism. Destructive metabolism, or the tearing-down of tissue, is known as katabolism. This, of course, gives rise to waste, and the products of waste such as the carbon dioxide thrown out by the breath, and the excreta from the kidneys in our case, and from the malpighian tubules of the stomach in bees and other insects, may be considered the ashes of katabolism. The building-up process is known as anabolism. The requirements for this building-up are the presence of sufficient and suitable food. Perhaps the most important of the food elements is the water referred to above, though oxygen is even more imperative, for all animals must have that constantly. The word "food," as usually used, refers to the other food, which in case of bees includes the bee-bread and the honey.

FOOD OF BEES.

No bee-keeper need be told that the food of bees consists of honey and bee-bread. The honey consists of invert sugar or reducible sugar as it is often called. There is no doubt that honey is one of very best kinds of sugars to be taken as food. The sugars and starch which, when eaten, are converted into sugar in the process of digestion, are known as carbo-hydrates. They are very important food elements. While not enough when taken alone to support the body, they greatly conserve the other and more costly food elements. Honey is the most soluble and most assimilable of all the sugars. Indeed, cane sugar has to be digested before it can be utilized by the body. Bees, then, do for us what we shall have to do for ourselves if we eat cane or common sugar instead of honey. Fats probably act much as do the sugars. Alone they are not sufficient for food, but they, too, conserve the more costly proteids. The proteid food we must have, even though we may have the carbo-hydrates and fats. The proteids contain chemical elements which are absolutely necessary to the formation of tissue. We get our proteids in muscle, cheese, and there is a large amount of proteid also in beans, and much in grains. The proteids of the grains or cereals, we call gluten; that of peas and beans and clover we call legumin. It is found that the cheapest and best food regimen has a ratio of about one to five. We mean by this that there are about five times as much of the carbo-hydrates as of the proteid elements in a food of the most economic ration. In case of our cattle we can regulate this as we can also in our diet. The bees do their own mixing.

HONEY PROSPECTS FOR 1905.

As we all know, California is away at the front as a honey State, whenever we have favorable seasons. The necessity in the case is abundance of rain. The prospects for next year are exceedingly bright. We have now had over 10 inches of rain. Last year at this time we had less than one inch. Whenever we get 15 inches we can usually count on a good honey crop. It is all the better if the rain comes late in the season. This year, as last, our rains are coming late, and so will do the maximum good. Last year we had a very meager rainfall, though what we had came in a way to be all utilized, and to give us the greatest benefit. This year we are getting a large amount. It is also coming gently in a way to be taken up by the soil and fully utilized. It is an interesting fact that, though we may have an abundance of flowers, if the water supply is cut short the flowers seem powerless to secrete nectar, and thus our honey season is a failure. Though we have not the same opportunity to study this matter in the East, yet bee-keepers of the East are made familiar with the same truth. I worked with bees every year in Michigan from 1869 to late in the 80's, and never a year but we had a fair yield of honey. Then for three successive years we had very dry seasons—so much so the pastures for stock were very poor, and the hay crop was so meager that prices ranged away up. In all of these three years, the honey crop was an entire failure. This simply proves that the plants are powerless to secrete nectar unless there is a good supply of moisture. As stated above, bee-keepers have generally supposed that it required fifteen inches of rainfall to give a good honey crop. The experience of two years ago would modify this view a little. If the rains are late, fewer are required than when they commence early in the year.

GENERAL CORRESPONDENCE.

SECOND-HAND SQUARE OIL-CANS FOR HONEY.

How to Treat Them so that They will be Fit for Use; a Valuable Article from One who Knows.

BY L. B. BELL.

On page 32 the Payette Valley Bee Co. inquires for a method of cleaning kerosene-cans. As we have stored and sold from four to eight tons of honey per year for the past sixteen years in such cans, without a word of complaint, so far as we know, perhaps our experience will be worth something to the fraternity.

While on this subject I may as well give our whole system of handling this class of cans, as I believe it will prove a great economy in the hands of *careful* bee-men of the West. The high freight rates on goods as bulky as five-gallon cans cased is prohibitive to the use of new cans. We people of the West, in order to play even, in a measure, with the Standard oil people, and the railroads in some way, for making our oil cost us 40 cts. per gallon instead of 12, as in Ohio, *have* to use their cans and cases for our honey.

We use all the gasoline-cans we can get hold of, as they are more easily cleaned; but we also use all the kerosene-cans we get as well.

I have an old scavenger, or a "raggedy-raggedy man," who gathers my cans for me in a local mining town. I pay him 5 cents each for his trouble of collecting and holding them until I go for them. I sometimes bring home 120 in a load.

REPAIRING CANS.

When we are ready to make a job of soldering we remove the oil-caps on the cans by holding them over a hot blaze in our soldering fire-pot, until the solder starts, which operation is quite rapid with a good fire. Next we patch any vent-holes which we find, and solder on our screw caps. Last year we got our screw caps from the American Can Co., San Francisco, Cal., or Chicago, Ill., with 1½-inch mouths and 2-inch base, which exactly fits the cans, and is a good size to fill into. When we find a can with its sides collapsed so that its capacity is small, after soldering it we straighten it by exploding 1 or 1½ drams of rifle powder as near the center of the can as we can hang it. It straightens them in a hurry. Tie the powder in a small cloth around one end of a blasting-fuse about eight inches long; cut a gash in the fuse near the other end, and put in a few grains of powder to "spit" the fuse quickly. Insert this cartridge into the opening in the can the proper distance to bring powder near the center of the can; secure by tying by a string to a ring on top of the can. "Touch the button" with a match, and the powder does the rest.

Cans thus treated may not case well for shipment, but are as good for storage for local use as any. A few experiments will teach you the amount of powder to use for different conditions of cans.

CLEANING THE CANS.

The method we have found the most satisfactory in rapidity and thoroughness is to make a solution of strong soapsuds by slicing up not less than two bars of some good laundry soap (without rosin in it is preferred) to a barrel of water. Add to this not over half a can or about ¼ lb. of concentrated lye. We then throw a steam-hose into the barrel, and boil until the soap is dissolved. We use a funnel made with the small end a little smaller than the size of the opening in the cans, to allow for expansion of the cool air in the can, and to prevent the hot suds from being blown back in your face while pouring into the cans.

We have a ¾-inch pipe running from the steam-dome of our boiler so we can get dry steam. This pipe has a perpendicular length sufficient to reach to the bottom of a can, with a valve within convenient reach of your hands. Insert this pipe in a can containing the hot suds, until the lower end of it reaches within about ½ inch of the bottom. Suspend the can in this position by a hook fastened into the ring on the can. Open your valve and let in steam enough to boil the suds, and throw it all over the inside of the can. We boil one can and fill another ready to boil, and rinse out the boiled can. We always rinse with two waters—the first time with clean hot water; the last, clean cold water. With this system one active person can clean 100 or more per day.

After draining these cans they are laid in a hot sunny place on their sides, with the opening nearest the top, to allow the remaining moisture and any odors to escape freely. We clean cans in hot sunny weather, as the sun is the most effective and convenient form of heat we have found for the volatilizing of the oil odors. We have found the use of concentrated lye in too strong a solution to be unwise. Try a strong solution of it on bright tin, and you will observe that it has a very corrosive effect. Cans thus treated are at once attacked by the acid in honey, discoloring and injuring the flavor of the honey. We leave our cans in the sun about a week, if we are not needing them, then go over them in the heat of the day, when they are hot, and we can easily pick out any doubtful ones by the odor, and leave them for a few days longer. When sunning does not remove the odor, another suds treatment may hasten the cleaning.

Where access to a steam-plant is not possible, the same results can be obtained by the thorough shaking of the hot suds and a longer sunning.

Camp Verde, Ariz.

HOW TO RUN SUCCESSFULLY AN OUT-YARD FOR COMB HONEY.

Read at the Fulton and Montgomery County Bee-keepers' Association.

We take it for granted that we have bees and supplies for an out-apiary. Then the first thing that is to be considered is its location. I will talk from experience and not theory.

1. Have it as near home as possible without interfering with the home yard.
2. Give it the best pasture you can.
3. Protect it from heavy winds, especially from the north and west.

I do not know that I could do any better than describe right here my present out-apiary, which is run exclusively for comb honey. It is located three miles from my home yard, almost at the top of the Champion Hills, on the north side sloping down at an incline of about 200 feet to each half-mile. It is protected on the west and north by a thick hedge of plum and chokecherry-trees, and on the east and south by an orchard of apple-trees. On the south side of the yard is the honey-house, facing north and looking over the bee-yard. At the east side is a honey-cabinet for the filled surplus supers. The hives are placed in groups of twelve, with two hives on each stand arranged in a semicircle, six on each side, facing each other. The groups of hives are in rows each way, giving an alley 12 feet wide with the rear of the hives on either side. The honey-house rests on wooden blocks so it can be moved when a new location is desired. Just inside of the door, in easy reach, is a four-inch Bingham bee-smoker, two whisk-brooms, honey-knife, hive-opener, a propolis-scraper, Alley drone-traps, queen-cages, bee-veils, screw-driver, and an extension hiver. Inside is a work-bench with a fair supply of tools. The bees are taken out of the cellar about ten days after we think it is time to take them out. With clean bottom-boards, and entrances closed so that about two bees can pass out at a time, they are corked up as warm and snug as possible. I don't do as much building-up by feeding in the spring as I used to. It is a slippery piece of business with an out-apiary. But little more is done until fruit-bloom.

To run an out-apiary for comb honey successfully you must cut corners at every turn, and make as few trips at possible.

Supers with sections containing full sheets of foundation, and hives filled with frames of worker comb or wired foundation, must be prepared.

I make about sixty trips during a year, for an outyard of 125 colonies, spring count, which requires about eighty days' labor of ten hours each. With an average season this includes every thing in relation to it.

The condition of each colony is recorded by the position of a half-brick on each hive. I can step out in the yard, and in a moment tell those hives that need attention to-day, to-morrow, or the day after, without going over the whole yard. Each colony is examined about once a week, or as the season requires. Then all the bricks are re-adjusted.

At the time of removing supers I use the bee-escape under the supers, then they are removed to the honey-cabinet. Here they are totally freed from the bees, and taken to the home apiary before the sections are removed from the supers.

One thing that must not be forgotten is the settlement for the use of the premises. Whatever the consideration may be, let it be a cash deal every time. Meet the landlord more than half way, and, after making a full payment in cash, give him a liberal supply of honey for the free favors you have received. The rule that works well at the home yard will succeed at an out-apiary.

The form of a cube is best for a brood-nest. The one that I use for comb honey is 13 by 12, and 12 inches deep. See that all drone comb is removed from the brood-chamber, and worker comb put in its place.

Almost all of my increase is by natural swarming.

Don't stand ten minutes for a little bee to get out of the way for fear it might get hurt. Let some things remain a secret to the inquisitive neighbor. A cloth lightly saturated in carbolic acid or kerosene will hustle the bees out of the supers. Bait-sections in the super are a little gold-mine to the bee-keeper. Have the honey-house at the south side of the yard, facing north. You can see the bees much more readily.

MAKING AN EXHIBIT AT THE COUNTY FAIRS.

Read at the Fulton and Montgomery County Bee-keepers' Association.

BY G. W. HAINES.

Make your entries early so the officers of the grounds will have your space ready. Even if you are sure you will be the only one to make an exhibit, do your best, for the benefit of the bee-keeping industry. Remember, good exhibits make good fairs.

Enter as many races of bees as you can,

each race with queen being in a single-frame observatory hive. I have an eight-frame observatory hive with a set of honey-boxes on top, and glass on all four sides. Hundreds of people will ask about a full-sized hive, and are surprised to learn that there are at least 30,000 bees in them, and many others at home with 50,000. When preparing this hive for an exhibit, run some of the bees back into the old hive and leave it on the old stand with some combs of brood in it, for a large colony will smother a great many bees, and look bad.

It is well to have five or six mailing-cages with queens and a few bees. Hundreds of people will ask about bees being sent by mail, and how far they can go in that small box. Many keeping a few bees will ask to see the queen and want to look her over, as they never saw one before, and those mailing-cages can be passed around.

I have lost but one mailing-cage with queen.

A great deal of pains should be taken with the honey-exhibit. The honey should be put up in as many forms as it appears in the markets of the county. Show as many kinds as possible of both comb and extracted honey, light and dark. Show also the candied form of each variety, and make some explanation concerning it. Many will say they like it best.

I find free samples a great advertisement for the bee-keepers in general. My wife handles the samples, using 12 small butter-paddles and 12 very small spoons. A pail with a wire screen one inch below the top, on which to drain the small dishes, is hung out of sight under a railing. When drained they are wiped off with a dampened cloth before using again. The greatest expense is the work. We used the most honey for samples last year, which was 15 lbs.

I was surprised at the large number who said they never knew before that there was more than one kind of honey.

In talking with people from other counties, I find they usually know some bee-keeper near them, and this is the time to tell them they can get just as many kinds and just as good honey of that bee-keeper. Often the man they know is a member of the Association.

Remember the night-watchman; show him the sample pail and spoon; tell him there is the place to eat his lunch; and if the night gets extra cold, just cover up the top air-hole in the observatory hives.

Take great pains in getting a large collection of honey-plants, pressed and mounted on white pasteboard, for many will speak of adulterated honey, and will be interested in the different honey-plants. Explain that many trees, plants, flowers, and even weeds will produce honey as good as that they are sampling, and that tons of honey go to waste on common weeds along the roadside.

Make a good display of beeswax and comb foundation. Show small pieces of foundation to those speaking of manufactured comb honey, and explain how it is made, and say that it is all that has ever been done toward making honey-comb.

Make a good display of hives, fixtures, and tools used about the apiary. Queen-rearing outfits should be on hand, for many will ask about rearing queens. Show as many bee-books as possible, and copies of all of the bee-journals. A few price-lists will be called for.

If bee-keepers' societies and bee-keepers themselves, especially those who produce large crops of honey, would take pains and see that every county fair was nicely represented, people would understand more about bees and honey, and there would be far less talk about the manufacture of comb honey and adulteration of extracted honey.

Don't try to make an exhibit out of a basketful of fixtures. The small exhibit I had last year at the fair, to say nothing about pressed flowers, observatory hives, many tools, and small fixtures, amounted to about $75. I received nine premiums, $24; paid for entry fees, $2.50; paid for two season tickets, $2, leaving a balance of $19.50.

There is no money made out of the premiums; but remember it costs to advertise. I have worked up a good retail trade for all of my honey, and don't get enough to supply the demand.

Mayfield, N. Y.

THE PENNSYLVANIA STATE MEETING AT HARRISBURG, CONTINUED.

In addition to the account of this convention in the issue for Feb. 15th, we have obtained brief mentions of two other papers that were read, and a copy of the one read by Prof. Frank Benton, which we give here in condensed form.

Rev. H. W. Bender read a paper on "The Honey-bearing Flora of Adams County." This was interesting in that it showed the exactness which any one may reach by taking notes on the honey-bearing flowers of his locality.

Dr. William Friar, chairman of the committee on food standards of the official agricultural chemists, spoke with reference to their work on the proposed definitions and standards of honey. Prof. Benton was asked to reply, and did so, reading the definitions which he proposed as substitutes for those which the committee has provisionally put forward.

In his paper entitled "Improvement of Honey-bees" Professor Benton said, in substance:

This subject naturally divides itself into, first, the selection of a race or breed; second, the selection of individual queens to breed from; third, the methods employed in rearing queens; and, fourth, the selection of drones, or male bees.

SELECTION OF RACE OR BREED.

Caucasians for beginners.—There comes to the mind of the beginner, in many instances, a dread of cross bees and the fearful stinging which may result from unskillful manipulation of bad-tempered races; but since there are bees so gentle as to remove all difficulties in this direction, and which are productive workers, comparing favorably with most others, the beginner would do well to adopt one of these races. The gentlest are the Caucasians, whose manifest place is in popularizing bee-keeping in cities and towns wherein fear of stings is their chief objection. It is quite possible, without the slightest fear of stings, to open the hives at any time during the working season, without the use of smoke, and with no protection to face or hands. The queens are exceedingly prolific, and the workers industrious.

Carniolans for comb honey.—For the highest grade of snow-white comb honey, Carniolan bees, or bees largely composed of that blood, are to be recommended. They are noted for prolificness, hardiness, industry, and gentleness.

The question might be raised why I would not recommend here the Italians, so long and favorably known in this country. While admitting that many strains of the Italians quite exceed others in productiveness, gentleness, hardiness, and honey-yielding powers, I can not in these particulars rank them as averaging equal to the Carniolans. Their disposition to cease brood-rearing, wholly or in part, at critical times, and their great predisposition toward dwindling in early spring, oftentimes makes it very uncertain whether their colonies will be in proper condition for the given harvest. On the other hand, the steady brooding qualities of the Carniolans enable any one who manipulates them rightly to bring them into any given harvest with a large force of field workers.

Cyprio-Carniolans for extracted honey.—By mating Cyprian queens to Carniolan drones a combination is produced of the prolificness, great energy in honey-gathering, and general activity of the best of the Eastern races, with the most hardy, prolific, and gentle of the Western races. The loss in this combination is seen in the somewhat watery appearance of the cappings of the comb honey.

SELECTION OF BREEDING QUEENS.

The greatest possible care should be observed in the selection of the queen-mother, both as regards the queen herself and also the qualities and race-characteristics of her progeny.

The stock.—A man of experience may judge merely by a careful comparison, during a given honey-flow, of the activity and relative amount of honey gathered in his apiary by individual colonies, and should choose from these the gentlest colony which shows the general race-characteristics of the breed to which it belongs.

The queen.—The queen, likewise, must show, in a preëminent degree, her race-characteristics; that is, she must be prolific for one of her race. *I have never found a queen-bee that was too prolific to suit me.* Along with this I look for strength of body, limbs, and wings.

MANNER OF SECURING CELLS.

If considerable numbers of cells are required, it is always better to have a colony of Carniolan bees, Caucasians, or some one of the Eastern races as cell-builders, since they produce much greater numbers, and are also excellent nurse-bees. The first step is to make queenless a very populous colony. On the third day thereafter the colony may be put into condition to receive queen-cells, which, when built, may be cut out and attached with melted wax at regular intervals on a top-bar. The larvæ ranging in age from forty to sixty hours are to be removed with a slightly bent toothpick, and, in their place, are to be put, with the same instrument, larvæ from twelve to thirty-six hours of age, taken from the colony of the chosen queen. This substitution of young larvæ insures a full amount of food from the very beginning—even a superabundance.

The next step consists in the removal of *all unsealed larvæ* from the populous colony which has been queenless during the preceding two or three days, to force the bees to turn their whole attention to the queen-cells. Should honey not be coming in freely, the colony should be fed daily a pint or more of syrup, and should have an abundance of pollen in the hive. If the weather is cool and changeable, care should be taken to keep the brood-nest warm. The young queens will all emerge 12½ to 13½ days after the transferring or substitution of the larvæ takes place. It will be easy to provide nuclei for the reception of each one of these queen-cells, or a small queen-nursery consisting of wire-cloth cages containing brood. It is by no means advisable to place the cells in a queen-nursery until the young queens are practically at the very point of emergence, since the slightest neglect or chilling at such a time, if not fatal is highly injurious to the future usefulness of the queen.

After emerging, the young queens are to be allowed a period of a week to fifteen days for mating. While queens of the European races usually mate in from five to seven days after emerging, those of Eastern races more often require nine to fifteen days; but in all cases the less confinement after four or five days the better.

SELECTION OF DRONES.

Quite the same care should be given the selection of the drones. It is true that we may not wholly control the mating; but in case a certain race is bred in its purity, and surrounding apiaries are stocked with those of a different type, it will be quite easy to reject any queens that have mated with drones of another race. It is, therefore, decidedly advisable to limit drone-production to queens which have sprung from the best colonies. Repeated experiments in crossing various types have convinced me that the drones have greater influence over the temperament and constitution of the workers than have the queens.

I am thoroughly convinced that, with more heed to *the rearing of the highest grade of queens*, there would be far less complaint of poor seasons and small honey yields than is now the case.

Washington, D. C., Dec. 5, 1904.

MINNESOTA STATE BEE-KEEPERS' CONVENTION.

BY THE SECRETARY.

[When I stated on page 120 that I had not heard from the secretary in reference to a report of this convention, she had already written us, saying that the report would be forthcoming, but the letter had not come into my department. This report, to a very great extent, will be supplementary to the matter given on page 121. —Ed.]

The largest and most enthusiastic meeting the Minnesota Bee-keepers' Association ever held was the one of December 7 and 8, at Minneapolis. It was held in connection with the annual meeting of the State Horticultural Society. Prominent bee-keepers from seven different States participated in the program, and the room was filled to its utmost capacity at every session.

The chairman of the committee on adulterated honey reported that, of the 96 samples submitted to the State Dairy and Food Commissioner, but nine were found impure, and that he found hearty co-operation on the the part of the commission in investigating alleged adulterations of honey.

The matter of co-operation created considerable discussion ; and an admendment to the constitution, allowing the association to broaden its work along that line, was proposed but defeated.

The first paper, by Mr. H. V. Poore, of Bird Island, Minn., on "Some Things I have Learned about Bee-keeping," gave some very interesting experiences. Among others he mentioned going to a plum-tree in October to shake down some plums, and finding a swarm of bees which had evidently hung there a long time, as they had built a large comb and filled it with stores. So much for our glorious Minnesota, where one may gather plums and honey at the same time from the same tree.

Mr. McEwen, of Minneapolis, then spoke on "Diseases of Bees and Legislation Pertaining Thereto," particular reference being made to foul brood. The Executive Committee was authorized to make every possible effort to secure the passage of a foul-brood law as soon as possible.

In this connection it is urgently requested that every Minnesota bee-keeper send his name and address to the secretary, Mrs. W. F. Wingate, 3022 South Dupont Ave., Minneapolis, to aid their committee in this work.

The next paper on "Bee-keeping as an Occupation," by Rev. J. H. Kimball, of Deluth, emphasized the point that those who keep bees should use every possible means to gain a better knowledge of the art by study and observation, and also to enlighten the general public on the progress of the industry.

Mr. V. D. Caneday, of Taylors Falls, a poultryman of large experience, and also a bee-keeper, gave a very interesting paper on "Poultry as an Adjunct to Bee-keeping." His point was that, as the busy seasons in these two industries did not conflict, they could easily be combined under one managment, with both pleasure and profit.

Dr. E. K. Jaques, then followed with the president's address, which was greatly enjoyed.

Mr. C. H. Harlan, of Mora, could not be present, and his paper, "Insuring Bees," was not read. The gist of it was that it was impossible to get insurance on an apiary. With this the Secretary took issue, and gave a recent experience along this line. In August last her home and all its contents was totally destroyed by fire. With it was some 500 lbs. of honey and a large quantity of supplies, for which the insurance companies paid full market price without question.

The clause in the policy read, "while contained in the above described dwelling or on said premises," a limit of $5.00 being placed on the value of any one colony.

Her forty colonies now in winter quarters are covered in the same way, and it will be noted that, having the policy in this form, makes it good for summer or winter.

Wednesday evening a large audience greeted Prof. Washburn, of the State Experimental Station, who gave a most able and instructive lecture entitled, "The Anatomy of the Honey-bee," illustrated by stereopticon views. It was well worth hearing *and seeing*.

During a short delay at the beginning, Mr. Abbott, of St. Joseph, Mo., gave a short talk on the "Comb-Honey Canard," and "Honey as an Article of Diet."

Mr. E. R. Root, of Medina, O., followed with his moving pictures, which have been so much enjoyed at other recent conventions. The handling of swarms, dumping them in front of the hives, and even the discomfiture of the bee-keeper when stung, were as real as life.

The Thursday-morning session opened with a paper on "Late Feeding," by Mr. A. D. Shepard, of River Falls, Wis., which was followed by a most interesting discussion.

Mr. Abbott was called upon to give his method of late feeding, which is, giving the bees a pancake of sugar in preference to syrup. His theory is, that bees will never starve if they have stores directly over the cluster, no matter how cold the weather; but they have often been found dead with combs of sealed honey on the sides of the cluster.

Mr. G. W. York, of Chicago, in a well-written paper on "Selling Honey to Grocers" (see Pickings, Feb. 1st issue) made several good points on putting up honey in packages of convenient form for grocers to handle. He is a strong advocate of selling honey through grocers rather than directly to consumers.

Dr. L. D. Leonard, in his paper on "The Size of Hive Relative to the Honey-flow," urged the use of large hives in running for extracted honey. He considers a large hive one that has the capacity of twelve frames of the common dovetailed variety. Any thing less is a small hive.

When the afternoon session was called to order all present were glad to see and hear E. R. Root, who gave what he was pleased to call "a talk," but which was really a very interesting and instructive address on "Baby Nuclei" and "Package Honey."

Mr. York, of Chicago, Mr. Wm. Russell, and Miss Mary Sinclair, furnished entertainment in song, and dancing in Highland costume that was greatly enjoyed.

The session closed with the election of the following officers for the coming year:

Pres., Dr. E. K. Jaques, Robbinsdale.
Vice-Pres., Mr. Scott Lamont, Jaretts.
Tres., Dr. L. D. Leonard, Minneapolis.
Sec., Mrs. W. S. Wingate, Station F., Minneapolis.

MEXICAN BEE-KEEPING.

BY F. A. LOCKHART.

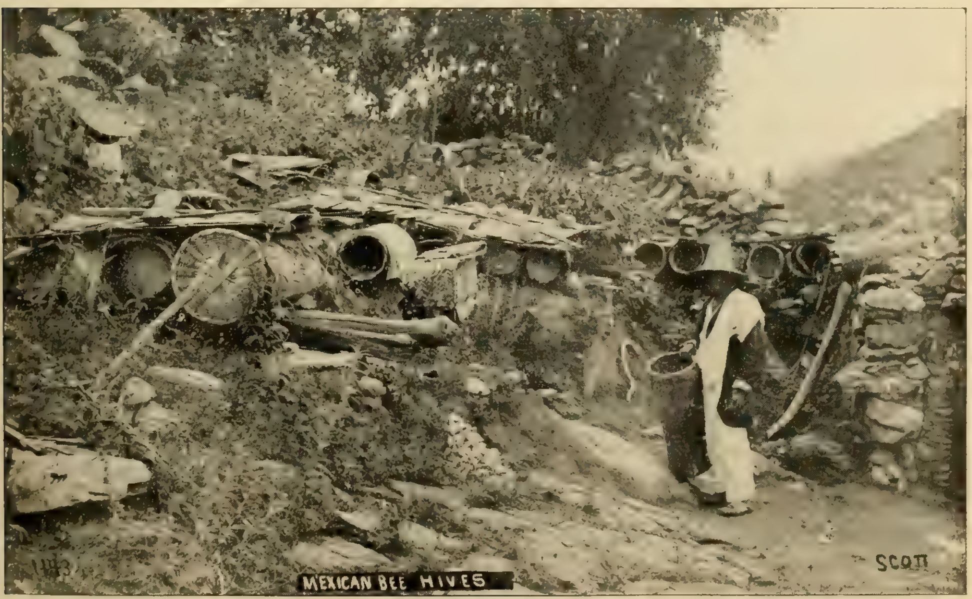
Mr. Root:—I send you by this mail a photograph which was taken in the mountains near Guanajato City, Mexico. It represents a Mexican apiary. The hives are made of a kind of coarse tough grass in the shape of a long round basket. There is a cover for each basket hive, which is put on until the colony gets established; then it is taken off or it drops off itself, for these Mexican bee-keepers are a rather careless lot. Any old way is good enough for them.

The young Mexican shown in the picture is about to hive a swarm of bees which is hanging on a limb of a near-by tree. He holds the basket hive up under the cluster of bees and gives the limb a shake, then throws the cloth (which you will see lying on his shoulder in the picture) over the mouth of the hive, and then drops the hive in the shade of a tree and then runs for the nearest shelter. In the evening he takes the hive and places it in the apiary. He has to be very careful to shake the hive well by putting on some old pieces of staves or brush, as the bees would not stay long in one of these queer Mexican hives exposed to the hot sun of that climate.

I must say something about the clothes he wore. He had on a pair of long loose white pants which came up almost to his neck, and no shirt, and a high broad-rimmed Mexican straw hat.

The old coat he had on, shown in the picture, I should say belonged to some one else, as it is quite too large for him. You will notice that the sleeves in the coat are turned back from his hands. He puts that coat on only when about to hive a swarm of bees, so the bees, when shaken from the limb into the hive, will not fall on his bare neck and back.

He wears sandals on his feet. You see about every kind of grass, weeds, or brush in Mexico has some kind of sharp thorn or burr on it; and there are cactuses of many kinds which abound everywhere in Mexico, and they all have sharp thorns.



When ready to take some honey the bees are killed by putting the hive over a brimstone or sulphur pit. It is quite often the case, when moving a hive in the apiary, to find a large rattlesnake coiled up under the hive.

Lake George, N. Y.

DE LUXE HONEY FOR THE MARKET.

A New Industry in Putting up Candied Honey in Retail Packages; the Importance of Catering to a Really Fancy Trade.

BY E. R. ROOT.

The ordinary packages for honey scarcely compare with the packages for holding food stuffs on sale at the ordinary grocery; take for example the beautiful wrappings of breakfast foods. As a general thing, honey put up in bottles nicely labeled is very attractive; but a good deal of the bottled honey on the market has a certain something about it that does not *quite* compare with other bottled goods like syrups, catsups, pickles, and the like. Even the cartons for fancy comb honey look cheap in comparison with the cartons to hold other classes of food stuffs.

In making this general criticism I am aware that, if there is any foundation for it in fact, it applies to the Root Co. as well as to the whole bee-keeping class. But it is high time we were all catering to a more fancy "de luxe" style of package. The fancier and more attractive the package, the fancier the price. It is possible, and legitimate, too, for the producer to double on his honey, for there is always a fancy trade willing to pay the price for a strictly fancy article.

At various times I have had something to say about the possibility of selling granulated honey to the retail trade. Many of our friends have ridiculed the idea. "Absurd!" "ridiculous!" "impossible!" they have said. But we *are* selling such honey to the city trade, and it does not seem to be impossible, absurd, or ridiculous. The illustration on the opposite page shows how the Root Co. is now putting up candied honey. It is an exact duplicate of the packages we are putting out in size, style, and lettering here shown. Indeed, it is gilt-edged; and it is the *only* package that can literally make claim to the title.

This design opposite is printed on some large placards, and hung up in the grocery windows to attract attention. Inside on the counters or in the show-windows nice neat piles of these bricks are laid one upon the other where the customer can see them. Their very novelty attracts attention, and people, out of curiosity if nothing more, are persuaded to buy, take one home, when, presto! they want some more.

Right here I wish to say that the credit of designing this beautiful package largely belongs to our honey-man, Mr. J. A. Warren, who has had a number of years' experience in selling directly to the retail trade. He not only takes charge of putting up the honey, but he is our salesman as well. The honey originally is purchased in square cans candied hard. It is then cut up into rectangular blocks weighing 1¼ pounds each, or 48 to the can of 60 pounds. They are then wrapped in paraffine paper to prevent soaking, then another sheet of parchment to prevent breaking. This is then slipped into a paper carton just the right size. Last of all there is a wrapping of white paper, printed in gilt letters, embossed, or raised. The ends are carefully folded over, and secured in position by a little square label with Root's honey trade-mark on it, showing the familiar wreath, the bee-hive, etc. The wording on top, "Wholesome, Delicious, Economical, Healthful," is particularly appropriate and exactly true. The effect of all this is beautiful and attractive.

Any one can figure up what his profits will be on a package of this kind, for himself, for these packages are retailing for 25 cents in Cleveland. Ordinary alfalfa honey in square cans costs anywhere from 6 to 7 cents per pound. Five people in our employ will put up 1000 packages, like the illustration shown here, in a day. That means taking the honey out of the square cans, cutting it up into bricks; wrapping it in two thicknesses of paper, one of paraffine and one of parchment, slipping it into a carton, wrapping it up again, and sealing as shown. A bee-keeper can do all this work with his family in winter, when they can hardly do any thing else to advantage; and when the honey is put up it will stay in that shape for months.

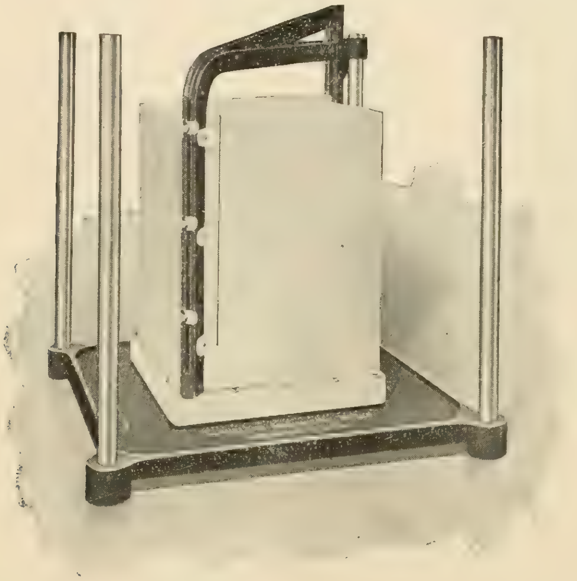
The Root Co. is prepared to furnish the wrappers, the cartons, and the printed matter as shown in this design. Of course, the source, "The A. I. Root Co., Medina, O.," would have to be replaced by the name of the party putting up the honey, who can have his individual trade-mark on the ends of the package. The other wording he can leave just as it is. Or if he wishes to see if his own honey will sell in his own locality we will furnish him the packages already put up, at the prices named in Special Notices elsewhere in this issue. Perhaps this will be the better way until the bee-keeper learns whether there will be a demand for this kind of honey in his locality, or whether he himself is salesman enough to convince the trade that these goods will sell if only given a fair chance.

The large fancy wholesale grocery trade of Cleveland is selling this de luxe honey at 25 cents a package as already stated. Indeed, at this time it is being advertised in all the large dailies of Cleveland, a city of about half a million people.

If the glucose people can put out an inferior food like karo, and make people actually buy it by mere force of advertising, certainly the fancy grocery trade in the large cities can make goods as fine as these go off like hot cakes. Editor York, of the *American Bee Journal*, has emphasized the importance of bee-keepers advertising more —advertising their honey. If more of this were done, and each bee-keeper endeavored to market his own crop to a very great extent, we should hear less of stagnation in prices; for be it known that the honey market at the present time is in a rather bad way.

Delicious Nectar Nature's choicest product Gathered by the honey-bees.
WHOLESOME
DELICIOUS
ECONOMICAL
HEALTHFUL
Guaranteed
PURE
Granulated
HONEY
The A.I.Root Co
MEDINA, O.

HOW CAKES OF GRANULATED HONEY, JUST AS THEY COME FROM THE SQUARE CANS, ARE CUT UP INTO BRICKS.



MACHINE FOR CUTTING CANDIED HONEY, AS ADAPTED FOR CUTTING ON HORIZONTAL PLANES.

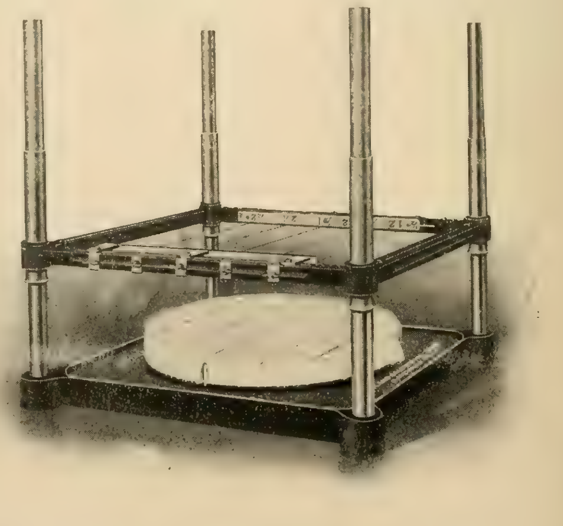
Many of our subscribers have asked just how we cut up the honey into rectangular blocks. I have already explained that we use an ordinary butter-cutter, such as the dairy trade uses. A pair of tinner's snips cuts the tin off from the square can of honey. The sides are peeled off, and the cake is inverted on a large circular porcelain disk, placed on an iron base having four upright standards, one at each corner. An iron frame, swinging on one of the upright shafts as an axis, door fashion, has two or more wires stretched across it at equal distances. This frame is swung with its horizontal wires around the cake of honey just as it comes from the can, the wires, of course, passing *horizontally through* the honey. The buck-saw frame is then removed, and the horizontal frame with taut wires on it at equal distances is then slipped over the four standards, then two 75-pound weights are put on each side. The machine is then left. The combined 150-pound weight gradually pushes the frame with its wires downward, the wires crossing on a perpendicular plane the track already made by the horizontal wires. In the course of two or three minutes the frame, on account of the weight, will have settled clear to the bottom. A thin-bladed knife slabs off the bricks thus cut, when they are wrapped as before explained.

These butter-cutters have been on the market for a number of years. They are nicely made, and do beautiful, perfect work. The horizontal frame with its taut wires has holes of just the right size at its four corners to slip over the four upright shafts so that the wires must make an absolutely perpendicular line of progress downward, without swerving to the right or left. Thumbnuts are provided by which the wires may be adjusted to different sizes of bricks, although we prefer to use the one size, which is just right to take up the entire contents of a can of honey, or 48 bricks in all without waste.

Some lots of honey are so solid that it requires half an hour for the frame with its weight to settle through the block. As a general rule, two or three minutes will suffice. While the machine is doing its work of cutting automatically, the operators are busily employed in wrapping up the cake of honey previously cut into bricks, so that no time is lost. As soon as one cake is cut another one is put on, and so on the work proceeds.

These butter-cutters can be obtained of the Cleveland Galvanizing Works Company, Cleveland, Ohio, and cost $50.00. The outfit includes what is seen in the two illustrations herewith. The same horizontal plate with the upright standards is used for both horizontal and perpendicular cutting.

Perhaps some may say that the carton



MACHINE FOR CUTTING UP CANDIED HONEY, AS ADAPTED FOR CUTTING ON PERPENDICULAR PLANES.

and the three paper wrappings are expensive. Perhaps; but if one desires to get a fancy price he must have a fancy wrapping. Sometimes there is a difference of only half a cent between a poor or mediocre package and one that is de luxe or fancy. It is penny wise and pound foolish to economize at this point. If the extra half-cent investment will bring five cents more, or even two or three cents, the money has been well spent.

"'Round home" we do not put our honey up in light cartons. For the local retail trade in our village groceries we supply the brick with only two wrappings of paper; but for the outside trade we supply the de luxe package. Where one wishes to use the honey right away, the two wrappings of paper are just as cheap as a paper pag, and answer as good a purpose; but in saying this I do not mean to decry the merits of the paper bag for granulated honey. Where one feels that he can not afford to throw away the square cans, and his honey is already in a liquid condition, he can run the honey off into bags, allow it to candy, and sell it to the trade or consumer direct.

I desire to emphasize the importance of catering to both classes of trade—the kind that knows you and your honey, and who would just as soon have a cheap package and save this cost, and the fancy trade that is perfectly willing to pay a fancy price for a really fancy article. It is this fancy trade that will pay you well for your work; and who, while it may not know it, permits you to double on your money, if you throw out of account the cost of wrapping, creating a market, and collecting accounts. One who goes into this business ought at least to double on his money, for his own time and brains are worth something, and he should be paid for them.

Heads of Grain
from different fields

DON'T LET THE BEES STARVE.

By this time in the winter the bees in many Langstroth and other shallow hives will have but little honey, and in some hives none will be left in the center combs; and the bees that are packed on their summer stands won't leave the cluster in cold weather and go to the outside combs in their hives for honey after they have consumed all the stores out of the center, and then death will be the result from starvation. Hundreds of colonies are lost every winter just this way. Can colonies in this fix in midwinter and in cold weather be saved? Yes, they certainly can, and every one of them be brought into spring in grand condition.

I bring combs of sealed honey into the house and hang them for several hours near the self-feeder until the comb is warmed right through. I then go to the colonies short of stores in the *center combs*, and take the packing off the top and put little sticks across the frames, and then from the house bring a warmed comb of honey and place it on its flat right over the cluster, and on this comb I place a few little sticks, and then I put on the queen-excluder and cloth over it, and over this I put four inches of forest leaves, and on this I put the lid of the hive, and over all put the cover of the winter-case. No colony, if taken in time and fixed this way, will die, if the other conditions are right. Those that have no combs of honey on hand can find one in the hives near the sides which have no bees on, and can remove and warm these and place them over the cluster, and by so doing save the bees until the weather gets mild enough for the bees to move through the hive in search of food.

Wm. McEvoy.

Woodburn, Ont., Feb. 16.

MIDWINTER FLIGHTS A GOOD THING; CELLAR VENTILATION.

I know from experience that midwinter flights are good things provided you can have the right kind of weather—not much snow, no winds or clouds, and as warm as 55 or 60. Here where I live (South-central New York) we get this kind of a day hardly once in ten years, consequently the very best I can do is to let the bees be out of doors in the fall as late as it is safe to do so, and then set them out the first favorable day after the 15th of March. I winter in a frost-proof building above ground. I usually carry them in the last days of November. If they have had a good flight a short time before, they are usually very quiet up to the middle of February, with the thermometer at from 44 to 46. After that time I find it best to keep it a little cooler, not going below 40. The bees have fresh air the most of the time. If very cold I close the ventilator tight until the weather moderates.

I have used this building for a good many years, with about the same results. The building is divided into two rooms, each about 10×12 inside, eight feet in height. Each room will hold and winter well about 75 hives each. Bees usually winter around here well outside with chaff hives, if kept well packed, and that done in good season. The winter of 1904 was the worst I ever saw. Those that had but few lost all. My hives are all single-walled. I put a little packing on top to get rid of moisture. If I had had the cellar when I made this building that I have now I probably should not have built it.

D. F. Lashier.

Hooper, N. Y., Feb. 15.

WINTER FLIGHTS.

I see in Gleanings that the question of winter flights is being argued. Ernest, you stick to it—you are right. Bees can be wintered without winter flights, but it pays, every time, to give them one or two each winter. I have had 20 years of experience in this. G. ROUTZAHN.

Biglerville, Pa., Jan. 30.

A SAFE WAY TO WASH OUT KEROSENE-CANS.

Years ago A. I. Root advised the use of washing-ammonia for this purpose. It is superior to lye or caustic potash (page 32). I can cleanse a five-gallon can with four quarts of hot water. Rinse the can out first, then put two tablespoonfuls of washing-ammonia with a quart of hot water. Do not screw the cap down tight, but shake thoroughly, then screw the cap down tight, turn the top of the can down, and let it stand a few minutes. Then I rinse twice with hot water. Let it stand a day or so to dry.

Morgan Hill, Cal., Jan. 21. M. BRAY.

FEEDING BEES IN WINTER.

I have a hive of bees in a keg in which they were caught, and they are dying. I think that they have no honey to eat. What is the proper way to feed them with sugar?

Rich Hill, O., Dec. 6. L. J. PAGE.

[The only way to feed in winter is to give the bees a frame of sealed stores or a cake of hard candy made from granulated sugar; but in your case it would not be practicable to give a comb, so you will have to depend on the candy. Bees should not be given liquid feed in winter.—ED.]

NEW ORLEANS MOLASSES FOR STIMULATIVE FEEDING.

How would syrup made from the sugar that settles in the bottom of the barrel of the best grade of New Orleans molasses do for stimulative feeding in the spring?

M. A. AULICK, M. D.

Bradford, Ky., Dec. 13.

[It would answer as well as any sugar for the purpose.—ED.]

THE LEAN-MEAT DIET AND DR. LEWIS.

I certainly owe you a debt of gratitude for having drawn my attention to Dr. J. M. Lewis, Rose Building, Cleveland, Ohio. I went to him in a very bad condition physically. No treatment appeared to avail. I found his treatment, including the lean-meat diet, followed under his direction, highly beneficial; and when he pronounced me cured I felt better than I ever did in my life. I had not a pain, no dullness, could sleep without a break for eight hours, and awake perfectly refreshed. Neither heat nor cold appeared to affect me. If in moving bees I lost a night's sleep and worked 36 hours in succession I felt it less than any one else. It is seven or eight years since I took the treatment, and throughout all that time I have felt lasting benefit. I often advise those with chronic nerve, stomach, lung, and other troubles, when I have no hope for them anywhere else, to go to Dr. Lewis.

Brantford, Can. R. F. HOLTERMANN.

[This may sound like a patent-medicine advertisement, but it is nothing of the sort. It came unsolicited, and without the knowledge of Dr. Lewis. We give it here because we, too, feel grateful for what the doctor has done for us. There are hundreds of other patients who could say the same thing, and are saying them to their friends. That is why he has such a large practice.—ED.]

OUR HOMES,

BY A. I. ROOT.

Consider the lilies of the field, how they grow; they toil not, neither do they spin; and yet I say unto you that even Solomon in all his glory was not arrayed like one of these.—MATT. 6:28, 29.

Our Savior loved flowers. We are sure of this or he would not have said that no human being, even Solomon with all the decoration and fitting-out that money and tailors' skill could produce, had any thing to compare with the simple grace and beauty of the lilies of the field. I have not said any thing for some time about my automatic greenhouse; and, to tell the truth, after I put my plants nearly all outdoors last summer so they did not need very much care or attention, I somehow lost my enthusiasm, especially when my time and energies were all taken up with that flying-machine. I did shut up the greenhouse and collect a few of the most valuable plants, and made some cuttings of the glittering achyranthus that pleased me so much with its gorgeous coloring. But I lost a good many of my plants by a lack of interest and enthusiasm until we began to have winter weather and long evenings. Then when I got tired of my reading I thought of the many pleasant evenings I passed the winter before. When I was searching through G. W. Park's catalog of floral seeds which he has for sale, page 153, and noticed a tremendous array of seeds that he had on hand at 5 cents a paper, or 3 cents for mixed, etc., I began to get the fever to grow flowers from seeds.

Now, I have not heretofore had very much luck in growing plants from seeds that are so small you could scarcely see them with the naked eye. But in friend Park's catalog he tells how to start the seeds in the three-inch pots, putting a piece of glass over the top of the pot to keep the surface moist, etc. I made out an order for 16 packages of seeds at 3 cents a paper. Do you want to know why just 16? I will tell you. Sixteen three-inch pots will just fill a box 12 inches square; and a pane of glass a foot square, the size I use for my greenhouse, just covers the box.

In looking over another seed catalog I discovered jadoo was offered in small quantities once more. I found later, however, they were obliged to import it from England, as it is no longer made in this country. Well, although florists in general do not seem to care for jadoo I can hardly get along without it in the greenhouse, especially for starting seeds.

I saw by one of the florist's papers the best sand for cuttings may be found where it is washed up or banked up near any stream. If there is a little brook that runs through your lots or woods, you can get just the nicest material in the world for growing cuttings or seeds by following the stream until you find where it has washed up sand or sandy loam to just the right degree of fineness. If you are not near a stream go to some railroad track and gather up the sand the engineer puts on the track to keep the drive-wheels from slipping. I used this in the winter when every thing was frozen up. If you have no jadoo, the next best thing is some old black rotted manure. Find where there is an old abandoned stable, and get the manure or compost that has got to be so old you can run it through a sieve without any trouble. I use three sizes of sieves for sifting my soil for my plants. For growing seeds I would have about half sand and the other half of this rich black compost. Fill your pots, and press the earth down with the bottom of the larger-sized pot so it will be flat and level. If your seeds are black, cover the surface with fine sifted sand, then you can see how to sprinkle them evenly over the surface. The seeds in a three-cent paper will be just about enough to put in a three-inch pot. Some kinds are so cheap, however, you had better not put in all—they will be too thick. As a rule, the little plants should not be nearer than ¼ inch. With the point of a knife you can move the seeds so as to get them about right. You may say this takes lots of time. But if you do it in the long winter evenings the time does not matter so much, and, besides, it is lots of fun—ever so much more fun, in my opinion, than spending time in playing games, because you have something accomplished and something left after you are through besides just the amusement.

Now, covering the seeds is a very nice point indeed. A little of your sifted sand sifted over them with a tiny sieve will do very well; but I like the jadoo or jadoo and sand together a good deal better. Unless the seeds are large you want only a very slight covering indeed—just enough to get them out of sight so your watering does not wash them all together and get them out of place. Larger seeds, say like sweet peas, can be covered ¼ or ½ inch. Press down the surface so the top will be flat and level, with the bottom of the same pot you used before. Your potting-soil should be a little moist before commencing. You want it so when you squeeze up a handful it will hang together, but not so wet but that it will crumble down when you throw it on the bench. The soil should be just about as you want it to work nicely in the garden.

After the seeds are planted, put them in this box that holds just 16 pots; or you can put the pots in for that matter, and sow the seeds right in the box. I like better to handle the pots separately. To keep the name of each kind, wet the pot and write the name with an indelible pencil. You need write only enough of the name so you will "catch on." Your catalog and labels will give you the full name, description, etc.

After your seeds are sown, the pots should be pretty well soaked with water, and you can not do this with a watering-pot without making mischief; but by spreading a thin cloth, something like a pocket handkerchief, over the whole boxful you can then use your sprinkler without doing harm. Some writers suggest dipping the pots in water until the water rises just above the surface. But this takes too much time—that is, if you are so careful as not to wash out the seeds, and I think it makes the soil too wet, especially if it is partly jadoo or our black compost. After wetting, put on your pane of glass and set your box where it is a little warm, and dark. You can keep the whole box in darkness until you see some seeds coming through the ground, then you want to put them where it is as light as possible, but not in the direct rays of the sun, especially in the middle of the day. You do not want to bake the ground around the little plants, and at the same time you do not want to keep watering them all the while. Water once in two or three days should be enough, and will be if you keep them in the shade when the sun is shining direct.

Now, I never enjoyed any thing in greenhouse work much more than seeing these little plants come up. Some seeds will come up in three or four days; others may take three or four weeks. The Tom Thumb nasturtiums come up about the quickest; the same with others of the tropæolum family. My tropæolums got to be so large that I have just transplanted them into 1½-inch pots.

I would by all means have some little flower-pots. The smallest are only 30 cents a hundred, and still less by the thousand. Just think of it—three pots for a cent! The next size larger costs only a trifle more. I will tell you why I recommend these little pots. When some little girl or boy comes to your house show him your plants, explaining how they grow. Knock out the soil, which is easily done when you have learned how, and show your visitor the tiny roots. The little white roots that run around the sides of the pot, in contrast with the black compost of jadoo make a very pretty and interesting sight. It will captivate almost any child; and then when you have a lot of plants just make that boy a present to take home for his "very own."

Many plants can be made to blossom in these smallest-sized pots; and this is especially easy if you take off cuttings or slips and grow them in these little pots. The box I have described for three-inch pots is just what you want for a cutting-bed. Put some of your compost over the bottom to make the bottom moist. This same box will hold a great lot of little plants, and there will be room enough for the plant between the top of the pot and the pane of glass. If there is not, you can raise the glass a little. Of course, this box is to be used when the seed-pots are all removed. The whole apparatus can be used in any window nicely. But in a window you will have to turn the plants around every day, else they will grow over toward the light. My tropæolums have to be turned every morning regularly. By afternoon they will be straightened up. The next morning they will be over toward the light. I can tell when a new plant or cutting is going to grow, in just one hour, by watching to see if it turns its leaves over toward the light.

Now, one of the most interesting things in growing plants from seeds is to watch the different-sized seed-leaves. I never saw a geranium seed-leaf in my life until I sowed some geranium seeds. These seed-leaves are, many of them, very pretty; and the little character-leaves that come between the seed-leaves in a few days are just as cute as can be. You can explain to the children it is a baby geranium, and so with the pelargoniums, snap-dragons, petunias, verbenas, salvias, colei, and all the rest. With the colei, the plant when it comes through the ground is almost microscopic; and where you have mixed seeds, as I have, what a wonderful thing it is to see the tiny leaves take on their respective colors! I tell the children it is the kind of painting that is done by the finger of God, the great loving Father who gave us these things to study and admire, and to permit us to turn our thoughts toward him, the great giver of all good.

I think I would have little boxes made to take a certain number of each of the pots. When the plant gets its pot so full of roots that they run clear around, sometimes again and again in trying to find more room, then they need to be in a larger pot. Put a little bit of moss in the bottom of the larger pot to keep the dirt from stopping up the hole for drainage; then set the pot with its roots and earth just in the center, and with a spoon put a little soil all around the sides, pressing it down with a thin flat stick. Keep on giving larger pots until your plant is in bloom, or when the weather becomes suitable, so it can go outdoors in the flower-bed.

A shelf in front of the window will do very well. A bay window with light in front and at each side is ever so much better; and a little bit of greenhouse, letting the light come through from overhead (right on top of the plants), is better still. This matter can be arranged with a couple of sashes. In Gleanings for last season you will see pictures of my little greenhouse leaning up against the cellar windows, and also one made of cotton cloth instead of glass. Something of this kind can be made very cheaply, and will answer nicely. A cloth-covered structure we use as the weather gets warmer.

Now, I hope you who love flowers, perhaps the little girls and boys as well as the older ones—will get right to work collecting some good potting-soil for starting seeds. You can find a box at the grocery that will be about right, and may be one that will fit a regular-sized pane of glass without any cutting. By the way, this box with the pane of glass over the top is a splendid place for sick plants. They have moist air, and you can give them an even temperature by moving the box where it is warm nights.

Some plants like the coleus, Chinese primroses, and others, sometimes rot off just at the surface of the ground, especially if you have been careless and given them too much water. If you have a forcing-bed—that is, what we call a glass-covered box – you need not feel bad if your plant tumbles over. Just cut away the diseased part, put the rest of the plant in a pot, with moist sand, and, if you keep the sand damp, and never let it dry out, your plant will take root and grow better than it did with the old diseased roots. Where a plant gets broken off by some accident it can be saved in the same way. Of course, you can multiply plants in this way. And please remember, when you get so many you have not room for all, to use them for presents to some deserving boy or girl. I do not know of any thing in this whole wide world so nice for a present or a reward as a pretty little plant in a neat little pot, especially if the plant has buds or blossoms on it.

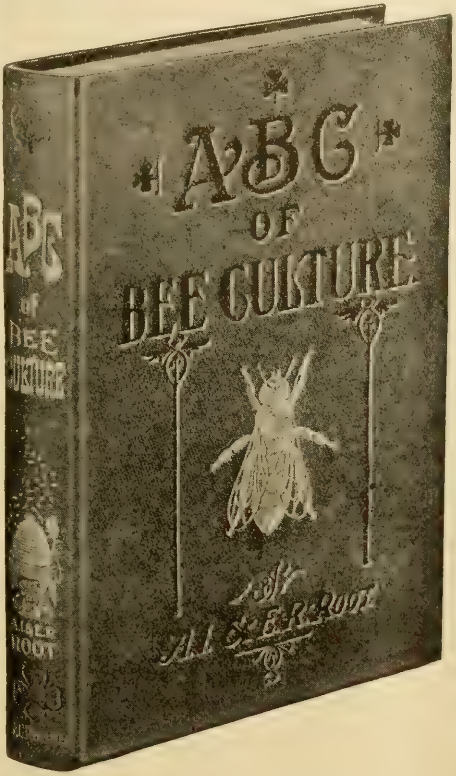
Another thing, what is there that adds more to the enjoyment of church service or Sunday-school than to have some pretty little plants on the table? If they are in pots you can set them on the table during the service, then bring them home again. They can be used in the same way to put on the table when you have company coming. If some one of the family gets to looking blue and discouraged, say when he is tired or hungry, just hold a pretty little plant up before him and see what a smile it will bring. Don't you believe it is one of God's messengers, sent by him for some great and good purpose to this world of ours? Our text tells us, as I said in the beginning, that the dear Savior loved them and appreciated their wondrous beauty. Is it not fitting and proper, then, dear friends, that we should love them too?

One particular plant that is making me happy just now is the cyclamen, or Persian violet, as it is sometimes called. It was sent me by mail by G. W. Park, and it looked pretty well wilted down when I unpacked it. I just put it in my box with a glass top, and the next morning it had straightened up its wilted stem and commenced to unfold one of its beautiful flowers. There is a grotesque grace about this plant—not only its blossoms, but it has something about its queer leaves that always gives me a thrill. Friend Park is the man who makes a specialty of furnishing rooted cuttings for a very small sum of money. He will send you his catalog if you ask him for it.

THE NEED OF BEE-LITERATURE.

BY G. C. GREINER.

During the 30 years of my bee-keeping I have been a constant reader of at least one bee-periodical; at times two, and even three, have been my regular visitors. I always supposed that by keeping in close touch with the writings of our most prominent experts, any bee-keeper would be enabled to keep up with the times. This is one reason why I never, until recently, owned one of our standard text-books on bee culture. Accidentally, for that is all the reason I can assign for it, I ordered a short time ago a copy of the "A B C of Bee Culture," and I must confess I was surprised in more than one way.



When I opened the package I was favorably impressed with its outward appearance. Neat and tasty in its general make-up, it would be a desirable addition to the most scrupulously selected library, especially as its contents are in harmony (as I afterwards found) with the outside.

The next pleasing feature was the point of expense. Comparing the size of the book, its workmanship and the amount of reading matter it contains with the price, it is well worth the money the publishers ask for it; it is within the reach of any moderately stocked-up pocket-book.

But its contents struck my fancy more than anything else. The way it is written—encyclopedia style—makes it an index by itself, so that any subject desired can be readily found. In looking over its pages I find that it is not only an indispensable guide to the beginner, but it is a great help to the veteran of many years' experience. It covers the ground completely, from the first rudimentary principles to the most scientific observations and discoveries of the present day, thus making its perusal interesting as well as instructive to the readers of all classes.

Under the impression of a little over-rated self-estimation we are sometimes inclined to think that we know all that a text-book of this kind contains, or at least all that is of any importance to the successful management of our business. This is an illusion. We may by years of experience and study become experts in certain lines, but we are not above improvement and progress. There are many good hints found in the "A B C of Bee Culture" which, if heeded and applied to practical use, would benefit any bee-keeper in a greater or less degree.

On the other side, I can not say that I agree in every particular with the writers of the book, and this is only natural consequence. During so many years of toil and labor we form certain habits, become accustomed to certain ways and appliances, that it would be a great hindrance to break off and follow somebody else's instructions. But in my opinion, if the beginner would take the "A B C of Bee Culture" for his guide, and follow its directions to the letter, his way to success would be open.

In closing this little sketch I would not miss mentioning one more fact. The book is profusely illustrated; every department has its share of descriptive illustrations, and the scenic representations at the front and in the back part are exceptionally fine. It is a pleasure to look them over.

Goods arrived yesterday all o. k. The frames are gilt-edge, and A B C book is away beyond what I expected to get. It has the appearance of a book costing double the price. I have looked over the contents carefully, and must say it seems complete. The arrangement is unique. I like the up to-dateness of it especially. It pleased me best of anything I have seen of its kind, and I have kept fairly well posted for over 40 years, and have kept bees in scores of different styles of hives, and have experimented quite a little with bees and hives.

JOHN ESHENFELDER, Eaton, Ind.

How fine it would be for the Hollanders, Belgians, and S. African Boers to have a translation of the new A B C of Bee Culture! It is the most practical and exhaustive work for the apiculturist, and I know of no work in the Holland language equal to it.

ELBERT S. SCHILSTRA,
W. Sayville, L. I., N. Y.
Pastor Reformed Church.

(Our French edition of the A B C of Bee Culture will be ready early this summer (1905). Spanish and Italian editions are already under way, and the suggestion of Mr. S. may lead to a Dutch or German edition.)

THE A B C OF BEE CULTURE

1905 Edition.

Published by The A. I. Root Company, Medina, O.

Its Sale. Probably no other bee-book in any language has had the immense sale the A B C of Bee Culture has enjoyed. The last edition, bringing its sales up to 100,000, is just from the press; and so rapid are the sales that frequently editions have been exhausted before the new ones could be taken from the press. Of the last three or four edition, so great has been the demand that anywhere from 1500 to 2000 copies have been ordered before these editions were even off the press.

Cyclopedia in Style. It contains over 500 double-column octavo pages, bound in cloth, half morocco, or full leather, to suit the taste of the purchaser. It is not an A B C in the sense that it is written for beginners only, but an exhaustive cyclopedia for the veteran as well, covering every subject relating to the practical management of bees. Its rapid sales have made it necessary to revise it at least once in two years, and sometimes oftener. Neither time nor money is spared to bring it clear up to date in every department of our rapidly advancing pursuit; and so extensive have been the changes that many of our customers get a new copy as fast as each new edition is issued.

Standing Type. The whole work was originally set up in standing type, so that it is very easy to add new matter or change o'd, blending the whole into one complete treatise. The latest edition, that for 1905, was revised and rewritten after the reviser had traveled some 10,000 miles among bee-keepers in various parts of the United States to study the methods and practices in vogue among the most successful honey-producers. Photos were taken by him, and the major part of all the material gathered has been incorporated in this volume. The articles are prepared in such a way that they fit every locality in the United States. The subject of Swarming, for instance, has been modified to fit the peculiar conditions as they exist in Texas, California, and the far West, as well as in the Eastern and Central States of the North. The chapter on Wintering now applies to every locality in the country. Then there is a special article on "Location," and its bearing upon methods and practices in different parts of the United States. Besides the methods of management of the bees themselves, the general subject of preparing the crop for market and selling the same is exhaustively considered in all its phases.

New Subjects. Some of the new subjects that have been incorporated in the new edition are the following: Beginning with Bees; Bees as a Nuisance; Bees, Stingless; Bellflower; Black Brood; Foul Brood; Canada Thistle; Candied Honey; Eucalyptus; Gloves for Handling Bees; Guajilla; Logwood; Marigold; Orange-blossom Honey; Organizations of Bee-keepers; Overstocking; Profits in Bees; Queen-rearing; besides a large number of changes, more or less extensive, important ones too, in nearly all of the older subjects.

Authorship. The book was originally written by A. I. Root, who, as far back as 1877, saw the need of a work of this kind. There are still quite a number of the articles remaining written by himself; but ill health, together with interest in other things, made it necessary for him to drop the work he had so grandly started. The general work of revision and keeping the book up to the times has devolved on his son, E. R. Root, who has probably written two-thirds of the work as it now stands.

Index. The book includes a very complete index, so that any subject or division may be easily found. To show how fully it is indexed, here is a specimen, selected at random.

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Illustrations. The book is the most fully illustrated of any work on bee culture.

Price in cloth, postpaid, $1.20; in half leather, $1.75; in full leather, $2.00. If sent by freight or express, deduct 20 cents from any of the above prices.

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has a yield record claimed for it of *250 bushels per acre* under experimental cultivation. Don't fail to order a quantity of this seed; it will please you and make you a lot of money. 1 lb., 20c; 3 lbs., 50c, postpaid; Bu. 70c; 5 bus. for $2.75; 10 bus. for $5, bags included,—purchaser pays freight. Write for prices on larger quantities. **Imported Black Tartarian Oats,** $1.00 per bu. Catalog of all kinds of *Garden, Farm* and *Flower Seeds free.* Mention this paper. **W. W. BARNARD & CO., Seedsmen, 161-163 Kinzie St., Chicago, Ill.**

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For best pictures of yards or lawns sown with my famous flower seeds

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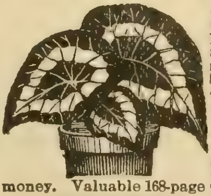

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Iron Age
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Easier Work—More Money

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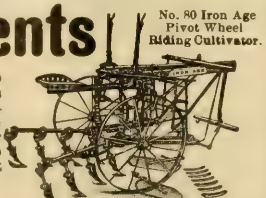

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Your Hens Will Lay
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the great corn for cattle feeders Ears a foot long, rich in oil, easily broken or crushed. An enormous yielder. Made 119 bu. per acre on my trial grounds, outyielding all of the 84 other varieties except the White Elephant. If you want corn that will outyield everything in the neighborhood try these two. Samples free for the asking. I will also send you my new catalog of seed corn, seed potatoes, garden seeds, and in fact all kinds of seeds but the poor kinds.

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25,000 LOGANBERRIES Large, Luscious, Melting fruit; entirely new and novel. Fine catalog. **W. N. Scarff, New Carlisle, O.**

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We have arranged to dispose of Mr. Fenn's (of Summit County, Ohio) seed-potato crop. Mr. A. I. Root's old customers and readers of GLEANINGS will remember Mr. Fenn as the raiser of late-grown potatoes which have given such excellent results all over the country for seed. We are now offering the following varieties:

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Early Everitt

Write to-day for prices. At bargain prices we are now selling, our stock will soon go.

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TESTED SEEDS!

We have a limited amount of home-grown Premium Flat Dutch Cabbage seed, testing 98 per cent vitality, which we will send postpaid for 15 cents per ounce.
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25 Strawberry-growers

who have spent time and money investigating "The Pedigree Question," give their conclusions, pro and con. Send postal for copy.

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The Best of Everything for the Bee-keeper

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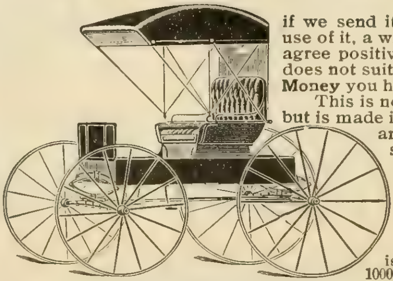
Do you want a new buggy? Will you try our

MODEL TOP BUGGY



if we send it to you, give you One Full Month s Free Trial use of it, a written, binding, Two-Year Full Guarantee and agree positively, without any restriction, to take it back if it does not suit you in every way and Refund Every Cent of the Money you have paid for freight or other expenses.

This is not an offer for small boys or irresponsible people, but is made in good faith to any responsible party who wants and is willing to pay the wholesale price of a strictly first-class, high-grade, right up-to-date top buggy.

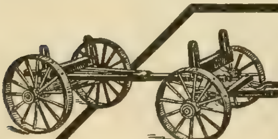
A simple request, either by postal or letter, will bring you our new 1905 Illustrated Vehicle and Harness Catalogue.

Our Model Top Buggy

is equipped with 100 strong and attractive features, has 1000-Mile Dust-Proof Axles, Quick-Shifting Shaft Couplings, Screwed Rim Wheels, Velvet Carpet, Water-Proof Boot, Genuine Best Quality Leather Quarter Top, Roller Rub Irons, Rubber Padded Steps, Strong and Substantial Full Ironed Gear, Best Shell Bark Thoroughly Tested Hickory Wheels tired with ¼-inch Oval Edge Steel Tires, and is painted the equal in durability, style and finish to the highest priced buggy on the market.

Write for full description and information as to how we will send you this buggy so that you can try it fully without one cent of cost to you. If you do not want to buy a buggy, then tell some friend about the most wonderful buggy offer ever made by anyone, and have him write for our catalogue. Address

The Model Carriage and Harness Co. 141 Sixth St., Cincinnati, O.

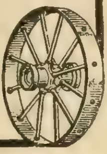


A low wagon at a low price. Handy for the farmer. Will carry a load anywhere a horse can travel.

Low Down Wagons

soon earn their cost on any farm.

Steel Wheels



for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to

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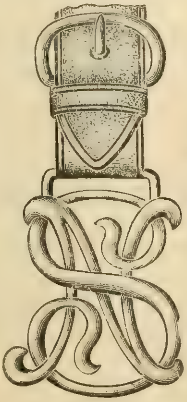

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Your monogram fob with pigskin strap; aristocratic, artistic, as is shown in cut. Heavy gold plate. Silk ribbon, swivel, and bar, 50c extra. Brooches and purses a specialty. Pins and badges in original designs and adopted colors of enamel for clubs, colleges, schools, and societies. Design and estimate submitted.

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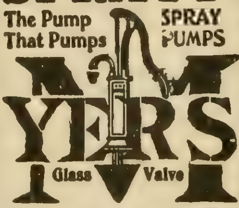

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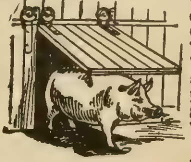

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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use nothing but the famous, old reliable, soothing and healing

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Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and how to Dress Correctly."

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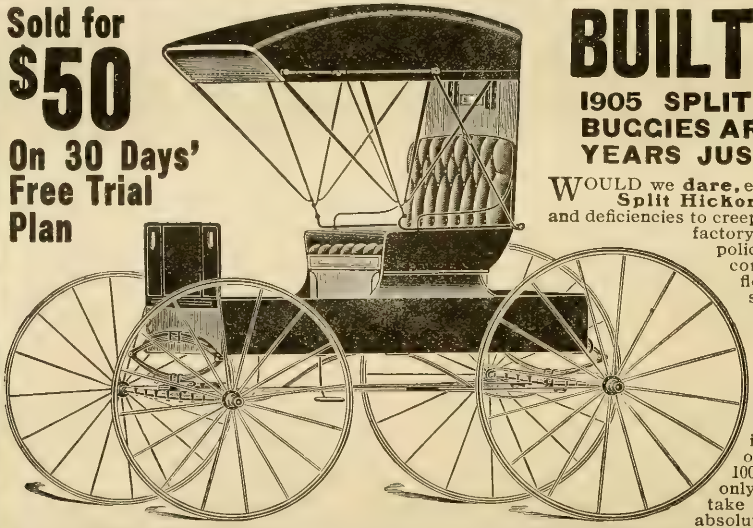

BUILT "ON HONOR"

1905 SPLIT HICKORY SPECIAL TOP BUGGIES ARE GUARANTEED FOR TWO YEARS JUST FOR THAT REASON.

WOULD we **dare,** even were we so inclined, slight the construction of **Split Hickory Special Top Buggies** and allow flaws and deficiencies to creep in, when each and every buggy goes out with a factory guarantee good for two years? No! Such a policy would be ruinous to our business, for within a comparatively short time letters of complaint would flood our office and the profits on our business would soon be swept away. It's because we **know** that every stick of timber that enters into the making of our vehicles is **split hickory** (not sawed) thoroughly seasoned and with the wear of iron in it, and that all other materials used are the best that money can buy, that we give this guarantee. It's because we employ the most skilled and competent workmen in the carriage trade that we guarantee workmanship as well as materials. Our buggy bodies have a 16-coat foundation of paint, oil and lead, and all woodwork is carried 100 days in pure oil and lead before priming. This only gives you an idea of the almost infinite pains we take in every part of our immense factory, to insure absolutely perfect results.

Our sales methods are unique. We do not do business with the jobber or the dealer. We have no agents. We deal with the people direct, through advertising in reliable publications, and give **them** the benefit of the wholesale price. We have the powerful influence of the editors back of us, who reinforce our guarantee with their own, affording their readers double protection. During all the years that we have been selling to the users direct through advertising, not one editor has received a complaint from a subscriber, that Split Hickory Buggies were not as represented. It is a record to be proud of, because we've earned it by fair dealing.

Our 1905 Split Hickory Special is in a class by itself. Here are some of the exclusive features that place it there:

Long Distance Collinge collar axles, quick shifters, Padded Patent Leather Dash, Rubber Padded Steps, Roller Rub Irons, Full Length Storm Apron, No 1 Best Quality Leather Quarter Top, all Wool Headlining, 16 ounce Green Broad cloth Cushion and Back, Spring Cushion and Panel Spring Back, Boot, Full Length Velvet Carpet, Arched or Dropped Axles, Choice of any width of Body, Either Three or Four Bow Top. Reinforced Shafts with Heel and Corner Braces.

We also manufacture a full line of Buggies of all styles, Driving Wagons, Runabouts, Phaetons, Stanhopes, Surreys, Carriages, Spring Wagons, Carts and Harness. **Our Split Hickory Catalogue for 1905** has 192 pages and is by far the handsomest we have ever issued. It explains fully our liberal terms of sale, quotes absolutely lowest wholesale prices and is elaborately illustrated. Sent free on request. Write us at once.

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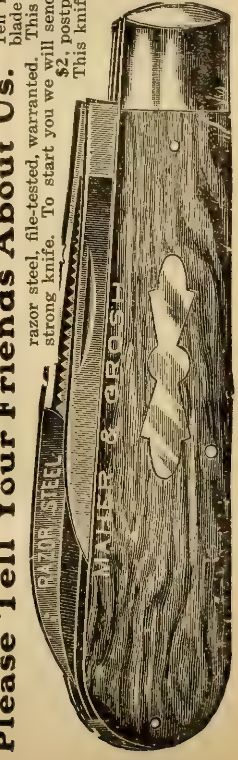
Please Tell Your Friends About Us. Tell him that every M. & G. blade is hand-forged from razor steel, file-tested, warranted. This cut is exact size of 75c strong knife. To start you we will send you one for **48c; 5** for $2, postpaid. Best 7-in. shear, 60c. This knife and shears, $1. Pruning, 75c; budding, 35c; grafting, 25c. Pruning shears, 75c. Send for 80-page free list, and "How to Use a Razor."



MAHER & GROSH CO.,
617 A Street, Toledo, Ohio.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange ladies' $60 bicycle for typewriter. Lock Box 4, East Calais, Vt.

WANTED.—Bees on L. frames; cash paid.
E. A. HEARN, Salisbury, Md.

WANTED.—Bees, honey, beeswax; trade or cash. Incubator cheap. G. ROUTZAHN, Biglerville, Pa.

WANTED.—Slumgum or refuse from solar wax-extractor at 3 cts. per pound.
YOUNG'S BEE-SUPPLY HOUSE, Boonville, Mo.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange Rhode Island Red cockrels for thin comb foundation.
D. F. LASHIER, Hooper, N. Y.

WANTED.—To correspond with parties in Michigan having bees for sale.
F. W. MANLEY, Sanilac Center, Mich.

WANTED.—To exchange queens for white hulless barley, Leghorn eggs (near home), incubator, or offers. See ad. this issue. S. F. TREGO, Swedona, Ill.

WANTED.—500 queens the coming season; quote prices, state strain and delivery. Address
THE ROCKY MOUNTAIN BEE CO., Berthoud, Colo.

WANTED.—To exchange $85.00 Columbia bicycle for an Oliver typewriter or offers.
E. E. LAWRENCE, Doniphan, Mo.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—A practical bee-man to buy half interest in 35 stands of bees and material—$100 if taken immediately. Improved hives, level country.
CARLLEE BROS., England, Ark.

WANTED.—For April or May delivery from near-by points, bees on Langstroth or Danzenbaker frames. Write, stating full particulars.
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

WANTED.—To exchange one Remington double-barrel shot-gun, one graphophone with records, one kodak, one bicycle, and full colonies bees in L. hives, for typewriter, cash, or other articles.
G. J. STURM, Flora, Ill.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To buy 50 to 200 colonies of bees free from disease, located in western New York or Pennsylvania. Also to sell or exchange one 200-egg size Reliable hot-water incubator (nearly new, cost $33); ten 1½-story Danz. hives, nailed and painted, been used one year, for $15. C. B. HOWARD, Romulus, N. Y.

WANTED.—If any of our readers have taken photos of bee-keeping scenes (unmounted will do) which have never been published and which they care to part with, they will be thankfully received by Rev. T. Chalmers Potter, Glasgow, Delaware. He wishes a few to illustrate a magazine article on bee-keeping, and publishers demand new ones never seen by the public.

Help Wanted.

WANTED.—An active experienced young man as helper in the apiary. Give full particulars and references. B. WALKER, Clyde, Ill.

WANTED.—A young man to take charge of 240 stands of bees in Wewahitchka, Calhoun Co., West Florida. Must understand taking comb honey. Want best of references—prefer recommendations from A. I. Root Co.
S. S. ALDERMAN, Wewahitchka, West Florida.

WANTED.—Man of good habits, with a little knowledge of bee-keeping, to assist in work on home and out apiaries as well as farm. Give references and state experience. CHAS. STEWART, Sammonsville, N. Y.

WANTED.—A young man who is enthusiastic to learn the honey-producing business as conducted on a large scale. Must be of a mechanical turn, active, industrious, and of strictly moral and temperate habits. A knowledge of queen-rearing desirable.
HENRY STEWART, Prophetstown, Ill.

Situations Wanted.

WANTED.—Position by young man to assist in apiary; temperate habits. B. W. Weltmer, West Salem, O.

WANTED.—A bee-keeper of 15 years' experience in California wishes to correspond with the right party. A. M. JOHNSON, Granby, Conn.

WANTED.—Position as assistant or manager in apiary. I have had several years' experience; understand the rearing of queens; no bad habits; 34 years old. "This is to certify that Mr. Brooks D. Cook was in my employ in the summer of 1904. I found him trustworthy and a good worker. He was engaged in the supply trade and raising queens. It seems to me that such a man should be recommended as exceptionally good help.—F. H. Farmer, 182 Friend St., Boston, Mass." Two seasons with Mr. W. W. Cary, Lyonsville, Mass. Give particulars.
BROOKS D. COOK, Leominster, Mass.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—White sweet clover, new seed, 4 cts. a lb. in 50-lb. lots. M. W. HARRINGTON, Williamsburg, Ia.

FOR SALE.—Melilotus (sweet clover) seed, $2.00 per bushel. W. P. SMITH, Penn, Lowndes Co., Miss.

FOR SALE.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. REEVES, Perch River, N. Y.

FOR SALE.—Large seed potatoes—Rose, Rurals, and Hebrons—$1.25 for 150-pound sack.
S. L. RHONE, Evart, Mich.

FOR SALE.—Half or all of my bees, composed of 200 colonies and fixtures; all in good condition, at a bargain.
R. EDEN, La Veta, Colo.

FOR SALE.—Machinery; a full outfit for making bee-hives, sections, etc.; with shafting; all in good shape.
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FOR SALE.—Fox hounds and puppies. Hovey strain. Each one guaranteed. Enclose stamp for prices.
W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

FOR SALE.—I have an extra good laying stock of Rhode Island Reds, and offer the eggs for hatching at 15 for 75 cts.; guaranteed strictly fresh when shipped. Orders will be filled in rotation.
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For Sale.—Forty-five colonies of bees for $100. **J. H. Collins**, Bardwell, Ky.

For Sale.—S. C. Brown Leghorn eggs, $1.00 per 15; are from fine-laying stock. **Frank C. Alexander**, Delanson, N. Y.

For Sale.—Am booking orders now for early queens and nuclei; good stock. Write for special prices. **Judson Heard**, Macon, Ga.

For Sale.—Full colonies of leather-colored Italian bees at $5.00 per colony. **F. A. Gray**, Redwood Falls, Minn.

For Sale.—Gladioli bulbs. These bulbs produced the flowers exhibited at the St. Louis World's Fair for 80 days. **L. F. Dintelmann**, Belleville, Ill.

For Sale.—Mortgage claim past due of $95.00 on 145 colonies of bees; two-story hives, L. frames; near Lovelock, Nevada. **H. Vogeler**, Fruitvale, Calif.

For Sale.—One Olds automobile, 1904 make, runabout, listed $650; nearly as good as new—used but little. For price, address **J. A. Thornton**, Lima, Ill.

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For Sale.—A few more slightly damaged (by water) hives, eight and ten frame, in flat; Lewis Company make; low price; satisfaction guaranteed; a bargain. Write us. **A. G. Woodman Co.**, Grand Rapids, Mich.

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I have also eggs from pure-bred Light Brahmas, Barred Rocks, White and Silver Wyandottes as above.

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I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

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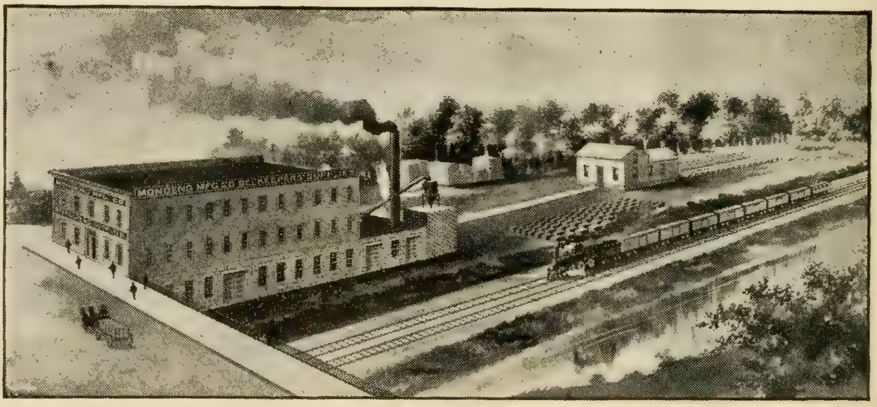

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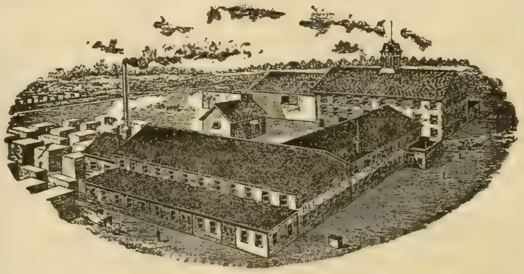

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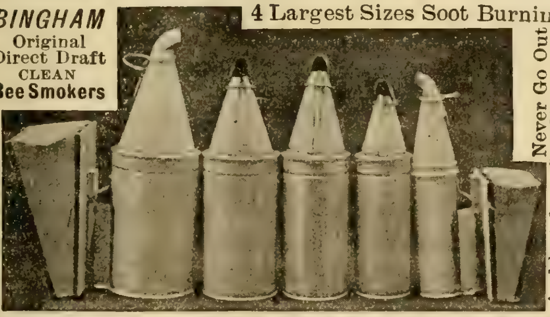

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to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

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Have These Latest Improvements.

I. J. STRINGHAM,
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furnishes everything in the line of Bee-keepers' Supplies. Italian Bees and Honey in season.

I have been in the supply business 14 years, and have kept bees 22 years. Have studied the East as a honey-producing country; know the honey-producers in each section, hence know the appliances best adapted, and furnish them. Our advice is yours for the asking. Catalog free.

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Cary Simplicity Hives and Supers;
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Thirty-two-page Catalog Free.

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ENYART'S COMB-FOUNDATION GAUGE gauges 18 different shapes of starters. Easy to cut 100 starters per minute. Circular free.
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Special Notices By Our Business Manager

BEESWAX MARKET.

We offer until further notice, 27 cents cash, 29 in trade, for average wax delivered here. While the market price has not materially changed we have worked off the greater part of our surplus stock, so we are warranted in marking up the price we pay to the above figure.

WOOD SPLINTS FOR FRAMES.

We have some inquiry for wood splints for strengthening combs by the Miller method, which has been described in GLEANINGS. We are prepared to supply such splints, about one-sixteenth inch square, 8⅝ inches long, at 10 cts. per 100; 75 cts. per 1000. If there were any considerable demand for them so as to warrant our rigging to turn them out cheaply we could doubtless make much lower prices. Why would not broom-corn or stiff dried grass cut to right length answer the purpose? If any one has tried such material for the purpose we should like to hear of it.

SUPERIOR SUPER-SPRINGS.

We have succeeded in getting a satisfactory super-spring, and within a short time will have an abundant supply here and at our branches. It is practically the same shape as we have been supplying for two seasons past, except that both ends are turned up to a hook, making it very easy to pull out, no matter which end down you may happen to get them inserted. But most important of all they have a lively temper which will always return to the original position or shape when released. Price 75 cts. per 100; and to those who have received defective springs of us or our agents during the past year or two we will furnish a like quantity to replace at 50 cts. per 100 or 70 cts. per 100 postpaid. If you claim springs under this offer please give date, of whom purchased, and quantity you received which were defective. This is intended to apply to springs sent out in hives and supers, as well as those purchased separately. The first shipment just received are, contrary to instructions, hooked only one end.

GRANULATED-HONEY WRAPPERS.

On another page of this issue will be found a full-size representation of our package of granulated honey with enameled-paper wrapper printed in gold. The package measures 2½x2½x4½.

The honey is first wrapped in heavy white waxed paper, then in white parchment. It is next placed in a folding carton, then wrapped, and sealed with end-labels. We may find on further experiment that a single wrapper of heavier parchment will be sufficient inside the carton. We make the following table of prices on the various parts of the wrapping for the benefit of those who may wish to try the matter at home.

NAME	Wt. of 100	PRICE OF 100	PRICE OF 500	PRICE OF 1000
Wax-paper wrapper............	12 oz.	$ .15	$ .65	$ 1.20
Parchment wrapper.............	10 oz.	.25	1.10	2.00
Plain brick carton................	4 lbs.	.50	2.25	4.00
Printed wrap. (name blank)	20 oz.	.50	1.50	2.50
Same with name and address	20 oz.	.80	2.00	3.00
End-labels (no name)...........	2 oz.	.15	.60	1.00

Printed wrapper and labels may be mailed at 1 ct. per 2 oz.; other articles, 1 ct. per oz. Be sure to specify, in ordering any of the above, "for granulated honey" so no confusion with other cartons and wrappers will be made.

GRANULATED HONEY.

A number of inquiries have reached us for samples of this honey in cartons. We quote as follows: Granulated honey in 1¼-lb. cartons, each, 20 cts.; $2.25 per dozen; per case of two dozen cartons, $3.60. Postage on one package, 20 cts. At present we supply the one size only, viz., 20 oz., or 1¼ lb.

PHOTOGRAPHS WANTED.

We are constantly in need of first-class photographs, strong and clear (sharp), of subjects relating to bee-keeping, for the illustrating of our catalogs, GLEANINGS, etc.; and to secure a good selection we offer the following prizes: For the best photo of an apiary—

1st prize, one red-clover breeding-queen; value $5.00.

2d prize, one select tested red-clover queen; value $2.00.

3d prize, one tested red-clover queen, value $2.00.

For the best photo of a single hive of bees, or a swarm clustered on a limb, or of any other object interesting to bee-keepers:

1st prize, one three-frame nucleus with tested Italian queen; value $5.00.

2d prize, one Danzenbaker hive complete, nailed and painted; value $3.10.

3d prize, one leather-bound A B C of Bee Culture; value $2.00.

These offers are limited to April 1st. Photos should not be marked in any way, but your full name and address should be put on a separate sheet, and *enclosed with photo*, and marked "For prize competition." Do not neglect this. Photos not winning a prize will be paid for according to the value to us, if we can use them.

Parties winning any of these prizes will be given the opportunity to make a selection of some other item if the prize awarded can not be used. The time is short, and photos should be sent at once.

TO FOREIGN READERS.

We offer for photos as above described, suitable for half-toning, the following list of prizes, separate from the foregoing, as the time limit on the above is too short to be available for foreign readers:

1st prize, one red-clover breeding-queen; value $5.00.

2d prize, one select tested red-clover queen; value $3.00.

3d prize, one leather-bound A B C of Bee Culture, value $2.00.

Time limit, July 1, 1905.

Special Notices by A. I. Root.

THAT AUTOMATIC GREENHOUSE, ETC.

A description of the above will be found on page 453, May 1st, last year, and a picture of it on pages 709, 710, of the July 15th issue following.

HATCHING EGGS OVER A BEE-HIVE.

As we go to press, reports have come of failures, but not one telling of even one single chicken that has been hatched by the heat from a cluster of bees. Don't waste your good eggs in the attempt.

MONEY IN BROILERS AND SQUABS.

This is a good-sized book of 150 pages. It contains a vast amount of information in regard to the whole business of incubators, brooders, and rearing young fowls of every description, such as geese, ducks, turkeys, squabs, broilers, even including guinea hens. It is well illustrated, but is not quite as nice print and paper as we find in the Business Hen. The price is 50 cents. Address the author, Michael K. Boyer, Hammonton, N. J. We can also mail it at the above price from this office.

MAPLE SUGAR AND THE SUGAR-BUSH.

Now is the time you want the above book if you wish to make the finest syrup or sugar that can be made from the sap of the maple. Price 30 cents postpaid.

There is another book just out, entitled "An Old-fashioned Sugar-camp." This is a very pretty book of over 200 pages by the Fleming H. Revell Co., Chicago. It treats not only of sugar-making, but has a good deal to say about the charms of the woods, especially in the spring. And then there is a very interesting chapter about "night in the woods," and another about the woods in winter. It is not only exceedingly interesting but is a valuable book. Of course, it does not discuss modern methods of syrup-making so much as does our own book first mentioned. One of its most interesting chapters is "Maple-sugar Making in Literature." Price $1.00. It may be ordered from us or from the publishers as above.

THE BUSINESS HEN.

The above is the title of a very pretty little book of 125 pages gotten out by our good friends of the *Rural New-Yorker*. I have not been able yet to find the price of the book; but as nearly as I can make out it is presented free of charge to every subscriber to the *Rural*. If you are not a subscriber to this excellent rural home paper I would advise you to send at once for it one year, and get the book. The book is worth the dollar, even if you did not get the *Rural* one year thrown in. The paper and print are excellent; the illustrations, which are scattered thickly all through, are splendid, and right to the point. The book is exactly what it claims to be—the business hen. And now while eggs are worth from 40 to 50 cts. a dozen, an intelligent investment in poultry is a hundred times better and safer than any oil-well stocks or gold-mines, or any of the get-rich-quick frauds that are pushing on to a body from every direction.

SWEET-CLOVER, SEED, ETC.

We have a large stock of nice fresh seed that has just been tested in that little greenhouse, and it germinates quickly. Please remember the reduced prices for the present year: 100 lbs. or more, 6 cts. per lb.; 10 lbs., 8 cts. per lb.; 1 lb., 10 cts.—by mail, 20 cts. Just now it begins to be evident that sweet clover is one of the best if not *the* best plant for introducing nitrogen bacteria in the soil, and this explains why it is that turning under a crop of sweet clover prepares the *poorest soil* for a *good crop* of almost any other plant.

In regard to sweet clover being called or considered a noxious weed, Prof. Thorne, Director of our Ohio Experiment Station, writes as follows:

Ohio Agricultural Experiment Station,
Wooster, Ohio, Feb. 23, 1905.

Mr. Root:—When you get out a new circular I wish you would cut out the statement that this Station has ever classed sweet clover as a noxious weed. Away back in 1877-78 I called attention, through Farm and Fireside, in an article which was copied generally in the agricultural press, to the fact that this plant grows only where nothing else will grow, and appears to be designed as a renovator of exhausted soils. I have never permitted it to be classed as a noxious weed while in control of this station.

Wooster, O., Feb. 23. Chas. E. Thorne, Director.

THE SEEDLESS APPLE — "EVERY MAN TO HIS TRADE."

There are now class journals on almost every industry; and these class journals are, as a rule, at home and reliable in their own domain. But every little while they spread out and undertake to teach in other fields. Now, it is all very well to look over the fence occasionally, and see what your neighbor is doing, and tell folks about it. But when you are teaching something outside of your regular calling, you had better be sure you are right. As an illustration: The *Scientific American* is excellent authority on every thing pertaining to science and mechanics; but when it gets into farming and gardening it is often very misleading. Just after our agricultural papers had all sounded a note of warning against being swindled with the seedless apple the *Scientific American* took it up and exploited it at length as one of the great achievements in scientific agriculture. Why did they not consult an agricultural periodical, or even ask some up-to-date farmer if their article was sound? If they got paid for giving a tremendous advertisement in their reading-columns of what has been generally agreed to be a fraud, that is worse still. When things of this kind come up suddenly our experiment stations belonging to the different States are not only up to date in all scientific knowledge, but they are always prepared to give an unbiased and unprejudiced statement.

In the *Tri-weekly Tribune* for Feb. 20 they give it a similar "boom," though not so extravagant as the *Scientific American*.

Below is what Prof. W. J. Green, of the Ohio Experiment Station, has just published in the *Ohio Farmer* in regard to the seedless apple:

> I have had a chance to sample this much-lauded sort, and am unable to rate it properly as to quality, for it falls below that well-known standard of poorness, the Ben Davis. This well-known claimant is sailing under false colors, for it is not without seeds, although it has less than is usual; but it has a place for them in the shape of a great big core. At the calyx end is a hole large enough for one's little finger, the purpose of which has not been explained. In color this variety excels some of its predecessors, but this is the only good thing to be said of it.

Convention Notices.

The annual convention of the Northern Michigan Bee-keepers' Association will be held in Lady Maccabees Hall, at Central Lake, on Wednesday and Thursday, April 5 and 6. Central Lake is centrally located, easily accessible from all directions, and we expect a good attendance of bee-keepers. Hotel rates will be, The Tavern, $1 50 per day.

As officers of the Bee-keepers' Association, we earnestly solicit your attendance, and if it be impossible for you to be present, please consider whether it is not in your interest to become a member by sending your dollar. This payment makes you a member for one year of both the Northern Michigan Association and the National Bee-keepers' Association giving you a chance to participate in any benefits these associations may confer on their members.

Editors A. I. Root, Medina, O., and W. Z. Hutchinson, Flint, Mich., will be present; also E. D. Townsend, Remus, Mich., Geo. E. Hilton, Fremont, Mich., and a number of practical apiarists of Northern Michigan. If you have never attended a convention let us suggest that you try it for once, and you will have a higher opinion of your calling. "In union there is strength" is as true with bee-keepers as others, and if we can get a good, strong association we can accomplish many things which are at present not possible. Trusting that you will become one of our members, and that we may meet you at Central Lake April 5 and 6, we remain yours truly,

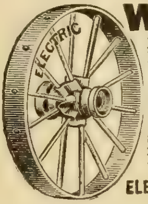
Geo. H Kirkpatrick, Pres.,
W. Mohrmann, Sec'y,
Northern Michigan Bee-keepers' Ass'n.

The Jennie Atchley Co., Beeville, Texas.

Dear Sir:—I received the bees all o. k., and I must say that these are the finest bees I have had for some time. I had purchased ten hives from Michigan a few weeks before ordering from you. I am sorry that I did not wait the arrival of yours, as they excel the others 100 per cent. I was greatly disappointed in the ten hives, as they are almost all dead; but the ones received from you are simply fine-working bees—as busy as can be—and I must compliment you on the way you send out your goods, as it is a credit to any firm. Geo. L. Buxton.

East Palestine, O., May 23, 1904.

If you desire the best of bees let us have your orders Bees by pound, nucleus, and full colonies, in small lots or carloads. We understand how to pack and ship safely, and this counts a long way. See our adv. in this journal The above letter was unsolicited.
The Jennie Atchley Co., Box 18, Beeville, Tex.



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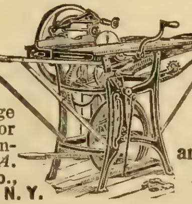
Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an
Electric Handy Wagon.
It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.
ELECTRIC WHEEL CO., Box 95, Quincy, Ill.



Wood-working Machinery.
For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A*.
The Seneca Falls M'f'g Co., 44 Water St., Seneca Fs., N. Y.
Foot and Hand Power

$1.00 - LOOK - $1.00
Send me $1.00 and receive Gleanings one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

POULTRY PAPER 1 YEAR 10 CENTS
Describes incubators, houses, feeding, care, etc. Sample free. Mention this paper. Poultry Gazette, Kansas City, Mo., or Topeka, Kan.

WANTED.—To send you two bee-journals for the price of one. Gleanings and the Rural Bee-Keeper, both for $1. Address **W. H. PUTNAM, River Falls, Wis.**

QUIRIN-THE-QUEEN-BREEDER

OF BELLEVUE, OHIO.

Is now booking orders for bees and queens. Our northern-bred Italians are extraordinarily hardy, having wintered on summer stands for the past eighteen years right near bleak Lake Erie; queens are prolific; bees gentle and energetic workers. Safe delivery and satisfaction guaranteed. Special prices in lots of fifty or more. Free circular and testimonials. Estab'd 1888.

Prices before July 1st.	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	....	....
Straight 5-band breeders	6 00	....	....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	....
4 frs. brood, 4 frs. foundation	5 00	25 00	....

BIG IMPROVEMENTS

WE WISH to say to our bee-keeping friends and customers, that we are now making big improvements in our queen-rearing yards. Our queen-rearing capacity will be twice as large this season as it was last, as the demand for our queens has increased so that we have now employed another expert queen-rearer for this season, and have added 500 more full colonies of bees to our apiaries. And our motto is going to be more queens and better queens. We are now booking orders for spring delivery. Why not let us book yours for any amount you may want in the way of queens and bees. No matter how large or small, we will be able to fill your orders promptly from one queen to 1000, and from one colony of bees to a carload.

Untested queens from March 1st to November 1st, 75 cts. each; $4.25 for six, or $8.00 per dozen; all other months, 25 cts. extra on each queen. Tested, from $1.50 to $2.50. Breeders, the very best, $5.00. One, two, and three frame nuclei and full colonies furnished on short notice. Prices cheap on application.

We can sell you dovetailed bee-hives made of yellow pine at about half the price of white-pine goods. Get our prices. Quality and workmanship guaranteed. Send for catalog describing the six different races we breed.

THE BEE & HONEY CO., W. Atchley, Prop., Beeville, Bee Co., Tex.

GOOD QUEENS

can always be had by sending your orders to us. Untested queens, $1.00 each; $4.25 for six, or $8.00 per doz. Tested, $1.50 each. Nuclei and bees by the pound a specialty. Write for prices. Wholesale orders solicited. We fill wire orders from 100 to 300 queens to responsible parties with 10 hours' notice. Safe arrival and satisfaction guaranteed. We have Carniolan, Holy Lands, Cyprians, Goldens, and the old-fashioned three-band Italians. All reared in separate fields 10 to 20 miles apart. All the Holy Lands and Cyprians in this part of the country are from our strains and our importations. Don't fail to consider quality and our thirty years' experience. Best breeders, $5.00 each.

The Jennie Atchley Co.,

Box 18, Beeville, Bee Co., Texas.

GEORGIA QUEENS.

Dear Sir:—Inclosed find $1.50 for two Golden queens. The queen you sent me last year built up a rousing colony, and is occupying 30 Danz. frames, and so far has not attempted to swarm. A. D. Taylor.

Memphis, Tenn., July 15, 1904.

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

The CHOICEST OF TESTED QUEENS

BY RETURN MAIL

From our reliable strain of three-band Italians, which all bee-keepers know are the bees for honey. Price $1.00 each. We guarantee satisfaction and safe arrival on all queens. Send for circular. ::: ::: ::: :::

J. W. K. SHAW & COMPANY

Loreauville, Iberia Parish, Louisiana.

Try Me

and see if queens raised by a little boy, 14 years old, are not as good as any. I have been brought up in the queen-rearing yards. Untested, $1.00 each; $4.25 for six; $9.00 per dozen. Safe arrival and satisfaction guaranteed. Money-order office, Oakville, Texas.

IVES ATCHLEY, LAPARA, LIVE OAKS CO., TEXAS.

Queens at the Old Stand

for 1905; 15 years' experience;
orders booked now; Golden stock.

J. B. Case, Port Orange, Fla.

HONEY QUEENS

LAWS' ITALIAN AND HOLY LAND QUEENS.

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

We Carry a Full Line of

Bee-keepers' Supplies

AT SYRACUSE, NEW YORK.

THE A. I. ROOT COMPANY.

Standard

POULTRY and BEE SUPPLIES

The best of every thing for
the Poultry and Bee Keeper.

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Freight Rates From Toledo
are the Lowest.

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Sixty-page Illustrated Catalog now ready for distribution. Send your name for one.

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DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. Delay means loss.

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F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ . .˙ .˙

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. .˙ .˙ .˙ .˙

Bees and Queens
from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

.....Special Notice to Bee-keepers.....

BOSTON

Money in Bees for You.
Catalog Price on

Root's Supplies

Catalog for the Asking.

F. H. Farmer, 182 Friend St. Boston, Mass.
UP FIRST FLIGHT

Root's Bee Supplies

at Root's prices, but at Baltimore instead of Medina. Send us your orders, and save time and freight. Large stock—prompt shipment.

RAWLINGS IMPLEMENT CO.

Wholesale up-to-date Farm Implements and Vehicles,

209 S. Charles St., Baltimore, Md.

We didn't burn out.

A Solid Foundation Means a Solid House.

Dadant's Foundation

Means Solid, Straight, Well-built Combs.

110,000 Pounds

Used by Bee-keepers in 1904.

Satisfaction Guaranteed.
Bee Supplies of all Kinds.
Beeswax Wanted at all Times.

Send for our 1905 Catalog.

DADANT & SONS, Hamilton, Ill.

Volume XXXIII MARCH 15, 1905 Number 6

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U.S.A.

Eastern Edition.

ENTERED AT THE POSTOFFICE, AT MEDINA, OHIO, AS SECOND-CLASS MATTER.

Special Bargains

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Next 60 Days

SEND US A LIST OF GOODS WANTED, GIVING QUANTITIES.

BEESWAX WANTED.

A. G. Woodman Co.
Grand Rapids, Mich.

Hilton's Chaff Hive

fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

George E. Hilton, Fremont, Mich.

The Michigan bee-keeper is the man we are interested in, whether he has one swarm or five hundred. If you are that man, we are talking to you.

The goods we sell are made in Ohio. You live in Michigan.

The point is this: We cut out the distance, and bring your goods home to you--and they are Root's Goods too.

Just now we are interested in getting our catalog into the hands of every Michigan bee-keeper. It is YOURS for the asking.

Your order to us, small or large, means prompt service and Root's Goods.

We are agents for the Danz. Hive--the comb-honey hive.

Beeswax wanted.

Write to

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BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

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Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

◆

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is. there will be "Fancy White," "No. 1 Dark," etc.

Toledo.—The market on comb honey for the past two weeks is better than it has been any time since last fall, but demand is not equal to the receipts. We quote fancy white in non-drip shipping-cases at 12½@13; No. 1, 11½@12; dark, 7½@9. Extracted, in barrels, white clover, 6@6½—cans, 7½@8; dark amber, 5@6. Beeswax, 25@28.
GRIGGS BROTHERS,
March 8. 521 Monroe St., Toledo, Ohio.

Cincinnati.—There is little, if any, improvement in the honey market here since last quotation. We hope to render a more encouraging report soon. We quote amber extracted, in barrels and cans, 5½@6½; white clover, 7@8. We quote fancy white comb at 12@13, Beeswax, 28.
THE FRED W. MUTH CO.,
March 10. 51 Walnut St., Cincinnati, O.

New York.—There is no improvement in the comb-honey situation. The demand is next to nothing, quotations nominal, and no doubt some of the stock will have to be carried over. We quote fancy at 13; No. 1, 11@12; dark, 9@10. Extracted is in fair demand, as follows: White, 6@6½; light amber, 5½; southern, in barrels, 50@57 per gallon, according to quality. Beeswax, firm at 29.
HILDRETH & SEGELKEN,
March 9. 82 Murray St., New York City.

Kansas City.—While the prices on honey have not advanced any as yet, there seems to be a little better feeling to the market, and the demand has picked up some. Fancy white comb still selling at $2.00 per case of 24 sections, with extracted moving at 4@6½, according to quality and kind.
C. C. CLEMONS & CO.,
March 20. Kansas City, Mo.

Cincinnati.—The comb-honey market has been a drag the last month—this caused the holders to offer extra inducements in prices. Prices obtained are as follows: No. 1 fancy water-white comb, 12@13; No. 2, 10½@11½. Extracted is sold as follows: White clover, in barrels, 6½—in cans, 7½@8; amber, in barrels, 5¼@5½—in cans, 6@6½. Beeswax, 27.
C. H. W. WEBER,
March 8. 2146-8 Central Ave., Cincinnati, O.

St. Louis.—Since our last, prices on comb honey have materially declined. There are considerable consigned goods of a fair quality on the market, which are offered as low as 9@10. The finer grades, however, are held at unchanged prices. Extracted is also easier and slightly lower. We quote fancy white comb honey, 13½@14; A No. 1, 11@12; No. 1, 9@11. Choice extracted white clover and Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5@5½; Southern in barrels, 4¾@5. Beeswax, 28½ per lb.
R. HARTMANN & CO.,
March 10. 14 So. Second St., St. Louis, Mo.

Chicago.—There has been somewhat of an increase in the number of sales during the past four weeks, yet the volume has not been large; while prices are, if any thing, lower than in January, especially on other grades than white clover. Fancy grades of white comb bring 12½@13; No. 1, 12—with some off in color, 11@11½; amber grades, slow at 8@10. Extracted white, 6@7; amber, 5½@6½, the price being governed by quality, flavor, and package. Beeswax, if clean and good color, 30.
R. A. BURNETT & CO.,
March 8. 199 South Water St., Chicago, Ill.

Schenectady.—Comb honey is moving off quite freely, but at a reduced price. There is also quite a demand for dark extracted from the Hebrew trade as usual at this season of the year.
CHAS. MCCULLOCH,
March 9. Schenectady, N. Y.

Boston.—The demand for comb honey still continues light, with heavy stocks on hand. We quote as follows: Fancy white, 15@16; No. 1, 14. Extracted, 6@8, according to quality.
BLAKE, SCOTT & LEE,
March 9. 31-33 Commercial St., Boston, Mass.

For Sale.—Choice ripe extracted honey gathered from clover, basswood, and fall flowers, in 60-lb. cans, at 7c.
CHAS. D. HANDEL. Savanna, Ill.

For Sale.—White honey (mostly basswood) in five-gallon cans, at 7 cts. a pound.
C. J. BALDRIDGE, Kendaia, N. Y.

For Sale.—Twenty-eight 60-lb. cans of beautiful raspberry extracted honey; white as clover, and equal as to flavor; sealed before extracting; crated two cans to the crate to ship; 7¼ cts. on car; sample free.
E. D. TOWNSEND, Remus, Mich.

For Sale.—Fine extracted honey, new square cans, at 7 cts.
C. G. LUFT, Forest, Ohio.

For Sale.—Extracted honey from alfalfa at 7½c per lb.
MORRIS MERCANTILE CO., Las Animas, Colo.

Wanted.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up, and lowest cash price.
CHAS. KOEPPEN, Fredericksburg, Va.

GOOD DISCOUNTS ON EARLY ORDERS
COMPLETE STOCK OF BEE SUPPLIES--LEWIS CO.'S AT FACTORY PRICES
MUTH SPECIAL HIVE THE BEST DOVE TAIL MADE
SEND FOR CATALOG.
WE ARE ALWAYS IN THE MARKET TO BUY HONEY--SUBMIT PRICE
THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
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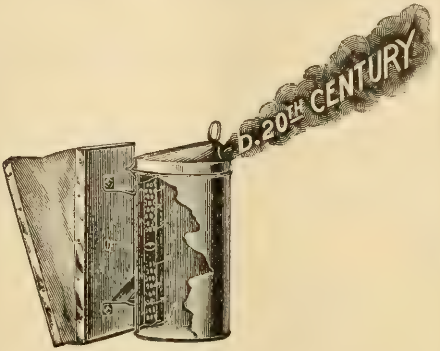

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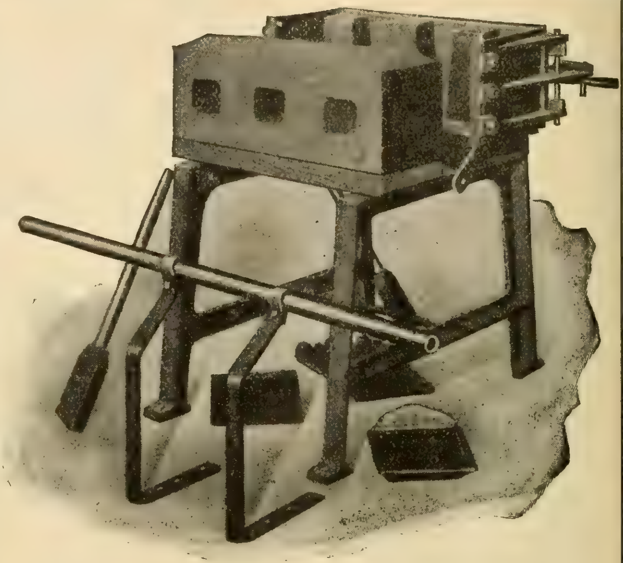

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In our March 1st issue we gave particulars of the prizes offered below, limiting the time to April 1st. It now appears that the time is too short; we, therefore, extend the time to **May 1st.** The prizes are as here given.

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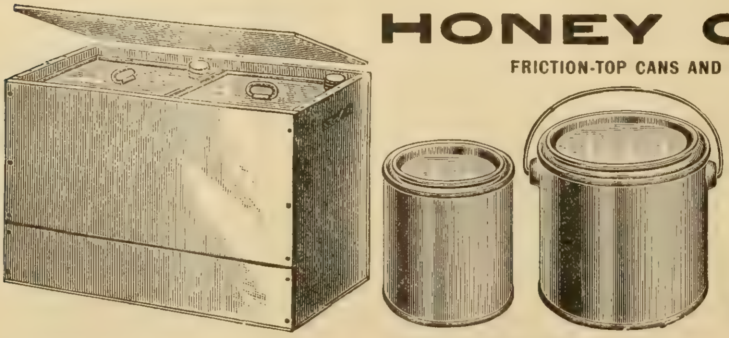

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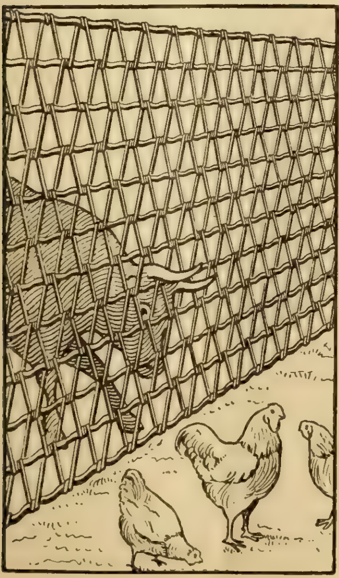

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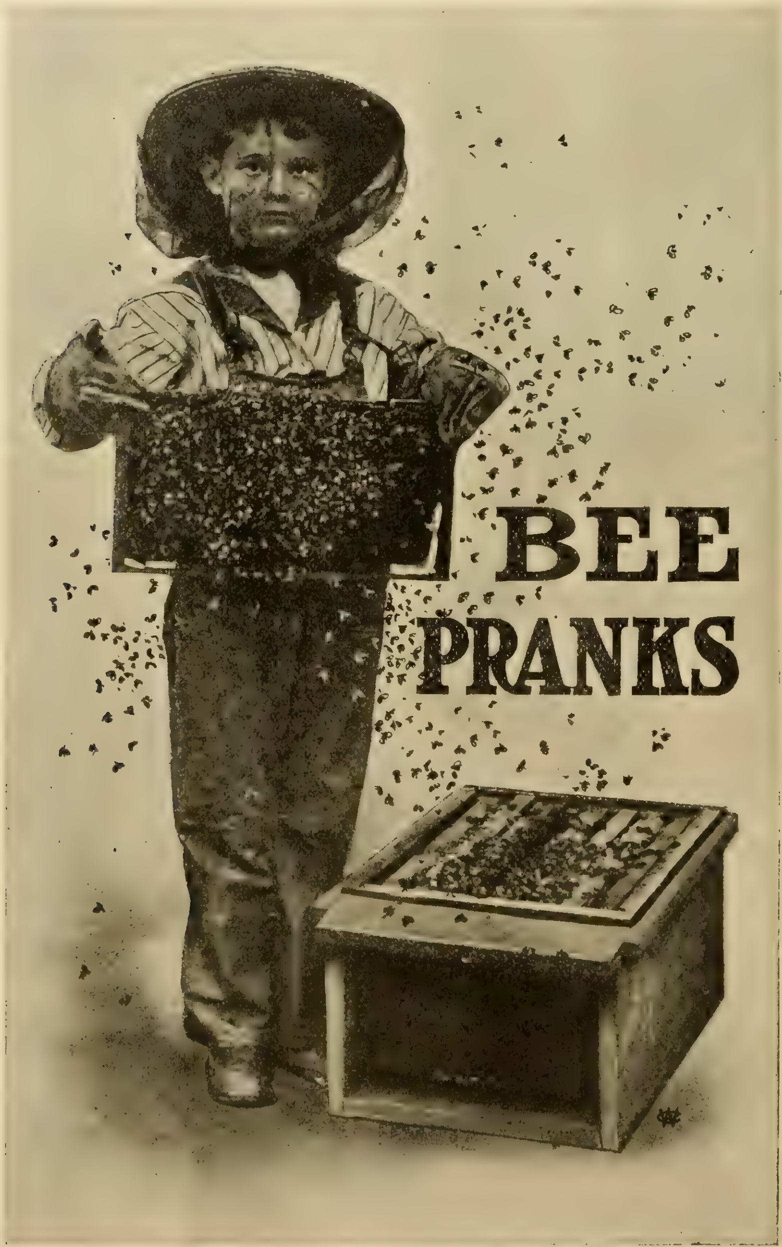

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year
Medina, Ohio

Vol. XXXIII. MAR. 15, 1905. No. 6

STRAY STRAWS

By Dr. C. C. MILLER.

W. L. COGGSHALL, p. 226, is called "that 300-colony bee-keeper." When was he reduced to that number? [Of course, that 300 should have been 3000.—ED.]

HONEY-SALVE for sores on horses and other animals: One part each of rosin, honey, and wax, 18 parts fresh lard; melt all together slowly over a moderate fire. So says a foreign journal.

ABBE COLLIN, in *Nahhla*, an African bee journal, is credited with the invention of perforated zinc in 1849. I supposed it was the invention of Hanneman, a German, who at an advanced age is now in Brazil, S. A.

HONEY-DEW is produced late in summer, and on fruit-trees its production depends on the success of the fruit crop. With an abundant crop, no honey-dew: with a total or partial failure of the fruit crop, honey-dew.—*Bulletin Suisse-Romande.*

AFTER READING about karo, p. 226, and what is said about the unusually dull market, p. 224, one feels like asking whether bee-keepers would not get big pay on the investment if they would unite in a campaign of counter-advertising in magazines and papers.

A RUSTY CAN—rusty on the inside—"should not be used under any circumstances," p. 226. How can we tell whether a can is rusty inside? Is it light enough to see? [Very easy, doctor. Hold the can up to the light, the eye about six inches from the can, and you can easily see any rust inside.—ED.]

PERFUME, in honey, is supposed to be due to the flowers from which it is gathered. This is true only in part, says Prof. Seiler, in *Bulletin Suisse-Romande.* The basic perfume is the same in all honeys, no matter from what source, and is a special product capable of manufacture only by the little winged chemists.

YOU CUT a can of honey into 48 bricks, p. 238. Why not 60? [Sixty bricks to the can *could* be cut—no law against it; but 48 makes a better shape for retail purposes, and much easier to cut. The 48 size is as small as is practicable to go. The great pressure necessary to force the wires through the mass would have a tendency to crush some of the smaller bricks, so says our honey-man.—ED.]

G. M. DOOLITTLE, p. 227, thinks bee-keepers were "unwise in rushing into one-pound sections *in advance* of any call for the same from the consumer." That may be a debatable question. If the *total* sales were sufficiently increased by the one-pound section, then the change was wise. But I am sure that Bro. Doolittle is right as to the general principle. When some change is made that does not increase the general consumption, only makes people prefer the new to the old, when both are offered, if the new costs the bee-keeper more, the change is unwise.

"MIDWINTER FLIGHTS" are not midwinter flights at all—wish we could have a more correct name. "Winter flights" or "early-spring flights" would be nearer the truth. [There are many of our terms that are not strictly correct; but because they have come to be accepted it does not seem to be practicable to change them. In a comparatively warm locality there will be flights in actual midwinter. Such flights should be provided for, even in January and February, when the outside conditions are such as to warrant it, or so I think.—ED.]

"BUT SAY, DOCTOR, why do bees need moisture," etc., says ye editor, p. 220. Just what I was trying to find out about. As I said in that Straw, A B C says "stir;" GLEANINGS says "Don't stir." Which are we to follow? [The article in the A B C, advising "stir," was written by A. I. R. The item in GLEANINGS, which says "don't stir," was written by myself. We have been conducting some experiments, which, later on, will be made public. This is true, that a stirred candy permits of the granules rattling down between the frames, and wasting, while a transparent rock candy will all be consumed; for the bees must mix their saliva or water with it, thus making a syrup of their own. It may be that experiments will show that honey is not a good ingredient to prevent graining, because it is easily susceptible to scorching. We shall see.—ED.]

TEMPERATURE of cellar should be somewhere about 45° till the last end of winter, when some say it should be warmer. I do not remember any one saying it should be colder at the last end except D. F. Lashier, p. 239. I wonder which is right. Possibly both. Mr. Lashier gives his bees midwinter flights, after which it may be better to have the cellar cooler; but it may be better to have it warmer if the imprisonment is unbroken. [But should it be colder or warmer? Is it not true that the right temperature at one time is the right temperature at another? The almost invariable temperature in spite of us will be warmer in the spring on account of the warm temperature outside. I have always noticed that the bees are quieter at 45 than at 50 or 55, in the spring. I have noticed, too, that when the temperature goes below 40 for any length of time there is liable to be a spotting of the hives.—ED.]

MIDWINTER FLIGHTS, says D. F. Lashier, need a temperature of as much as 55 to 60, and you, Mr. Editor, prefer 65 to 70, believing that at 45° bees may be chilled and not get back, p. 63. From a good many observations I have changed my views no little. Beginning with your present views, I have come to believe that it is not a matter of exact temperature so much as the kind of day. Feb. 28, at 1:50 P.M., it was 45, calm, with a bright sun. I carried out five colonies. They began flying very soon, and did not cease flying till 5 P.M. at 42°. I *think* no more bees were lost than if it had been warmer. A snowbank was directly in front of one hive; and when a bee lit on the snow, which was rather compact, it seemed to have no trouble in rising again. [I feel more and more satisfied that the thermometer will not be an entirely safe guide as to when the bees may be allowed to fly. Of this I am sure, that a *still* atmosphere is one important condition. The thermometer might show 60 or 65 and a chilling wind, while a temperature as low as 45, with a *still* atmosphere, would be far better for the bees.—ED.]

"WHAT IS HONEY?" If bee-keepers can agree upon a definition there will probably be no difficulty in getting it accepted at Washington. J. A. Green is right in his views, p. 220, and his first definition is good if "from natural sources" includes every thing gathered by the bees that is not directly fed by man, and bars out every thing fed by man except honey. I don't know whether it does that or not. Another thing: As bee-bread is a mixture of pollen and honey, would it not come under the head of "sweet substance"? Possibly it ought to. Don't bees sometimes store water in cells? If they do, "liquid," in his second definition, might not do. But the two might be combined into "sweet liquid." I fancy I can see the twinkle in Mr. Green's eye as he says, "Well, doctor, if you don't like my definition, give us a better one." Don't know enough, Jimmie. [The fact that bees sometimes store water in their cells would not in the least affect Mr. Green's proposed definition. An excess of water in honey would not be regarded by the chemists as an adulteration, for the amount of water varies according to the amount of ripening. If man were to adulterate good honey with water he would spoil it at almost any price, and there would, of course, be no temptation to put it in.—ED.]

SAY, ERNEST, it looks this blessed minute as if it might be warm enough for bees to fly this 8th of March, 11:25 A.M. I'll go out and see. . . It's 35 north of the house, but I don't think that's fair, for there's quite a bank of snow and ice there. North of the shop, where there is no snow, it's 38. It's a bright day, very few clouds, very little air stirring, some snow on the ground, covering perhaps 10 per cent of its surface. Now I'm going to carry out a colony. Don't you wish you were here? . . Well, I took out four. It took them about 5 minutes to wake up enough to fly. No. 234 was a little spotted in front, and the bees were hanging out just a little. That colony did not need 5 minutes to wake up. . . Now 15 minutes since the last one (234) was taken out, and it's flying fairly well—the others not so well. The breeze is increasing more than is pleasant. . . Now 12:25. They've been out 40 minutes, and are making a fairly good flight. Gone up to 39, of course at the shop. . . At 1 o'clock it's 40; bees not flying quite so well. . . At 2:40 it's 42, and bees are flying about a third as much as when at their best. . . At 4:30, at 41°, the hives came in shadow, the bees ceased flying, and were promptly cellared. Ought they not to stand confinement now till May or June? [So far we have not given any of our indoor bees a winter flight, as they have been so quiet, and the outside has been so cool or cold. In the first place they did not need it; and in the second place they could not have had it if they would. Here is the way I see it: Winter flights are necessary when the outside temperature is so high as to affect materially the temperature within the cellar, making the bees within uneasy, consuming largely of their stores and congesting their intestines. When the temperature outside would not permit of flights from fall to spring there is not much need of such flights. But when there are many fine days outside, when the bees might just as well have a flight, the probabilities are that one flight, at least, will be highly beneficial. See editorial elsewhere on this subject.—ED.]

BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION TEXAS

Bees are humming in Texas.

* * *

"Cut it out!"—that superfluous drone comb.

* * *

Feed your bees if they *need* it, even if it be sugar syrup.

* * *

Breed from the best queen in the yard, whether she be pure or hybrid.

* * *

"Honey" is the saccharine liquid gathered by the bees from natural sources, and stored in their combs.

* * *

If you must have drone comb in your apiary, keep it in your best colonies so that the result will be select drones.

* * *

Everybody seems to be trying to define "honey." It is hoped that a satisfactory definition may be arrived at in the end.

* * *

Have selected drones in your yard to fertilize your young queens. They will not cost you more to keep than poor ones.

* * *

Now is the time to see that your bees have enough stores. They consume more during the heavy breeding season than at any other time.

* * *

My thanks are due "Swarthmore" for two copies of a series of "Papers on Apiculture" by that author. The first is entitled "Increase;" the second, "Baby Nuclei." These souvenirs are gotten up in neat style "by hand, in the Swarthmore shops."

* * *

Colonies short of stores are fed with the least trouble by simply placing shallow extracting-supers with combs of honey on the hives. Such supers are kept on hand on strong colonies the year round, and come very handy in early spring.

* * *

"Bee Pranks," a neat booklet of facsimile newspaper clippings of "bee-yarns," was was kindly sent me by the compilers, the G. B. Lewis Company, of Watertown, Wis. There is a great variety of the funny, droll, humorous, and even the ridiculous. Many thanks.

* * *

There are several ways of managing weak colonies. Unite two or more and make one good one, being sure to provide them with a good queen. Or help the weaker colonies along and use them for artificial increase later while the strong colonies are used for honey-production exclusively.

* * *

In Stray Straws, February 15, Dr. Miller makes fun of us chaps 'way down South. Why, doctor, I am afraid you have things a little mixed. I feel sorry for you chaps 'way up North. You can never experience the feeling of satisfaction one gets out of going in shirtsleeves outside where the sunshine is bright and balmy; where the bees hum and the birds sing, and where the roses bloom the year round. You see, I've spent this winter here in the North, so I know.

* * *

That fellow with the "new and unreliable glasses," in the *American Bee Journal*, pages 136 and 168, comments on some of the St. Louis convention happenings. He gives some good "afterthoughts" to some "forethoughts" mentioned by the writer, at the meeting in connection with an outline of work in apiculture to be taken up at the Texas Agricultural and Mechanical College. Some valuable hints are advanced, and good use will be made of them. More, later, when results are obtained from some of these experiments.

* * *

Mr. H. A. Mitchell, of Shepherd, Texas, writes me: "I expect 300 colonies to go into the supers by the first of April. Prospects are fine for a crop of honey this year. We have had a hard winter, but the bees are in fine condition. Weather is fine now, Feb. 24, and the bees are rolling in honey and pollen from maple. Wild peach will be in bloom in a few days; and if the weather continues good we shall be in the swim for a good crop." This comes from a place in the heart of the basswood and holly district of East Texas. He has four apiaries, and runs 200 colonies in a yard. His honey-flows are heavy, crops large, and the quality of the honey is fine. Most of it is section honey, 4½ square; 7-to-foot sections are used, without separators. The flow comes with a rush, and his strong colonies take possession of the whole super at once. This, together with large narrow sections, insures a fancy product of comb honey.

HOFFMAN FRAMES, AGAIN.

It is to be hoped that a decision of manufacturers of Hoffman frames, to abandon the V edge, will not prevail, if such ever existed at all, for square edges are as great a nuisance to some of us as the V edges may be to others. The V-edge frames can be used where propolis is bad, while the square can not. The assertion that there will be no trouble if the frames are crowded close together every time they are handled does not count for much; for where propolis is bad it will roll on to the flat surface, and is packed solid with each successive handling. You can not squeeze in out of the way with two flat edges, but it can be done with the V-edge frames. These can be crowded together, and proper spacing result—hardly so with the square-edge frames. This difficulty is only increased with the thicker end-bars, which give more surface to the edges. On the other hand, the thick end-bars with the wider edge are a decided improvement in the V-edge Hoffman frame. Nail these up right, and keep them crowded together in the hive, which *can* be done with them, and I can not see any serious faults of such a frame.

Editorial
By E.R. Root

The cold spell seems to have been broken. Unusually severe weather seemed to prevail throughout the country from Feb. 1st to the 20th, when, very fortunately, a warm wave came on, giving the outdoor bees a chance to turn over and seek new brood-nests on honey in the outdoor colonies.

The reader will notice that this issue contains 68 pages. We have been adding right along 16 extra pages until our regular issue has been 48 pages. Now we are adding 16 more, or 68 in all. We still have on hand a large amount of good copy, which we hope to get before our readers soon.

The bee-keeping fraternity, especially of the South, has suffered a great loss in the untimely death of Dr. G. W. Rush, of Savannah, Ga., who died recently at his home of pneumonia. Dr. Rush was vice-president of the Georgia Bee-keepers' Association, organized last October at Atlanta. Although still a young physician with a large practice we understand he had laid plans to discontinue his professional work to take up bee-keeping on a more extended scale. He leaves a widow and two small boys, one of four years, the other three months, to whom is extended our sympathy in this time of sorrow.

WINTER LOSSES UP TO DATE.

Notwithstanding we have had quite a snug winter up till now, March 14, the reports throughout the Northern States are so far quite favorable. There was a time when it looked as if the losses might be very severe in the territory south of the Ohio River; but more favorable weather has come on since, and the bees are apparently recovering from the severe cold wave. From other parts of the country, with a couple of exceptions, we have received no adverse reports.

There has been a large snowfall, and a greater portion of the country where young clover was so promising last fall has been heavily blanketed with snow. Every thing looks favorable for a crop of honey in the East. The conditions in California are still favorable, and the bee-keepers are jubilant.

A GOOD TIME NOW TO MOVE BEES A SHORT DISTANCE.

Now is the best time of the whole year to move bees short distances, providing they have not had a flight recently. If they have been wintered in the cellar they can be placed anywhere in the front or back yard, irrespective of the old location. If they have been shut in on their summer stands for a period of two or three weeks or a month, they can likewise be moved to any place. If cellar bees have had a flight within a week and have been put back in the cellar many of them will go back to the place from which they took their winter flight if taken out in the time specified. Similarly, outdoor bees moved a short distance, if they have had a flight within the week, probably would go back to the old location, many of them being lost.

BEE-KEEPING ILLUSTRATED IN THE PARKS OF NEW YORK.

Considerable space has been given in late issues of the New York and other Eastern papers to the matter of appointment of an apiarist for the bees in the city parks of New York. A civil-service examination was lately held, and it appears that Miss Emma V. Haggerty, now a teacher in the public schools, stood highest on the list. Commissioner Schrader, however, declined to give her the appointment, maintaining that the work could be done better by a man. Mr. John H. O'Mara has secured the appointment according to the latest reports from the papers.

In any case the people of New York and vicinity are afforded an excellent opportunity to see the workings of the honey-bee in three of the important parks of New York, and, if we mistake not, these bees will be one of the most interesting features found in the parks. This seems to be something of an innovation in park equipment; and if it proves a success in New York, as we have no doubt it will, it is likely to be followed in other large cities.

MICHIGAN STATE CONVENTION REPORT.

The attendance at the Michigan State Bee-keepers' convention at Grand Rapids, Feb. 23, 24, was very good. The hall provided by the hotel was so crowded that extra chairs had to be brought in. There was a very good display of foods made with honey, by the National Biscuit Co., and also of the honey exhibited for prizes.

Aside from the question-box discussions, there was some important business transacted which will be of real value to the members. At the convention the year before, they decided to issue a pamphlet in the fall, giving a list of the members having honey to sell, and opposite each name the amount and kind, with also the style of package. When this came out it had, in addition to the list, much information concerning honey, with some good directions to dealers for storing it; and a few emphatic statements proving the falsity of the stories about manufactured comb honey. About 2000 of these pamphlets were sent out by the secretary and some of the larger producers, to grocers and commission men.

This year they propose to enlarge this pamphlet, giving the entire list of names, with both those that had honey and those that had not, and also a greater amount of reading-matter to make it more complete.

Instead of the convention bearing the expense, almost enough advertising was secured from the different manufacturers and dealers present to pay for the printing.

It was the idea of the convention that a much larger number of these should be sent out, so that still more good might come from it. Mr. York suggested that, if a number of them were sent to the publishers of some of the larger bee-journals, with the necessary postage, they could then be mailed, with a printed letter from the secretary to the entire list of Michigan subscribers. He said that this was done in Illinois recently, and that the association membership was thereby increased by one hundred.

The question-box brought forth a discussion which centered almost entirely on the subject of wintering. The following points may be of general interest:

One man had bees in a tight single-walled hive, with the cover sealed down, and, though the entrance was filled with ice; the bees came through in good order.

Fourteen hives were placed in a cellar, and because they annoyed the people living in the house above, the entrances were stopped with carpet-rags. All wintered well.

Cover the hives with snow, for the bees that are in cold exposed hives will consume so much more honey as to bring on dysentery. There will be little danger of smothering.

If a hive is old, and has not been painted much, sufficient air will pass through the wood to keep the bees. A hundred colonies of bees need less air than the average man.

Put an absorbent packing above the bees, and an air-space above the packing. Do not put oil or enamel cloth under the packing.

Put the best honey in the center of the hive when wintering in severe weather.

The temperature of Bingham's bee-cellar is about 35, though it sometimes goes as low as 30 for several weeks. A damp atmosphere in the cellar requires a higher temperature.

The shock of taking bees out of the cellar in the spring is an objection to cellar wintering.

Propolis makes an excellent flux for soldering lead and copper, and will do for brass and tin, though not for iron.

If a new empty super is put below one nearly filled, the upper one is likely to be left unfinished. When the empty one is above, the filled one below should be taken off before it becomes travel-stained. Swarming is greater when the empty one is put on top.

It pays to remove filled sections in the center of the super when not advisable to tier up. Change the capped sides to the outside in the two outer rows, if necessary. Judge colonies according to their individual conditions. H. H. ROOT.

WINTER FLIGHTS; WHEN THEY ARE AND ARE NOT ADVANTAGEOUS; OPINIONS HARMONIZED.

I AM not sure that there is any thing in the articles in this issue on the subject as above that is not in harmony with what I have advocated in reference to these winter flights except this: That the general opinion has gone abroad that these winter flights are never to be advised. This, I think, is wholly wrong; and in so far as these correspondents may share this opinion I would disagree with them. Mr. Hatch and Mr. Townsend live in a colder climate than we do here in Medina, or that of a large proportion of bee-keepers who winter indoors. So this whole question is one that hinges very strongly on locality. If the temperature of the cellar can be kept at 45 through almost the entire winter, the cellar reasonably dry, and the ventilation fair to good, a winter flight may involve only unnecessary labor on the part of the bee-keeper; but I can not think it would do any harm even then if the bees are taken out and allowed to fly and *return the same day.*

As nearly as I can ascertain, some of our correspondents who have advised against the practice supposed that I have advocated leaving the bees out several days or a week. Of course, brood-rearing would be started if the weather were warm, and there would surely be trouble in the cellar when put back, as soon as the first cold spell came on.

I think we all agree, 1, that a winter flight that involves several days is not only unnecessary but positively harmful; 2, that winter flights are probably unnecessary in cold localities when the temperature of the cellar can be *maintained* at a *uniform* point, and where it does not warm up much if any until it is about time to put the bees out permanently.

But in localities where it warms up much outdoors, as it does here in our locality, the temperature in the cellar is quite sure to vary from the nice ideal of 45 up to 50 and possibly 60. The bees during these rises of temperature are quite apt to be stirred up to activity, consume more than the usual amount of food, and as a consequence their intestines become distended. The remedy is obvious—a winter flight of one day.

I will say to our friend Mr. Townsend that we one winter kept half our bees in the cellar until the time of putting them out. To the rest we gave the benefit of a winter flight about a month before they were set out. The difference in favor of the last lot of bees mentioned was so noticeable that I feel satisfied our friends would have agreed with me that these bees were in much the better condition.

Now, then, it may seem that I am going to agree with our correspondents. But this winter we have had continually cold weather. The temperature in our machine-shop cellar has varied scarcely a degree. The doorway to the cellar has been open all the time during the last two months. Those bees are all quiet, and from present indications will remain so until the time arrives to set them out permanently. But, understand, we have had a winter that is more like the winters experienced by friends Hatch, Townsend, and Doolittle. There! when we take into consideration the difference in winters and localities I think we shall quite agree.

WHEN BEE-CELLARS SHOULD AND SHOULD NOT BE VENTILATED; DOOLITTLE CELLAR IN PARTICULAR; SHOULD THE FLIGHT OF OUTDOOR BEES BE KEPT UNDER CONTROL?

In his regular article in this issue Mr. Doolittle rather discourages giving ventilation to bees in a winter repository—advises leaving them alone from the time of putting them in the cellar until the time of taking them out in the spring—at least this is his practice. He does not bring out the fact, however, that *locality* has every thing to do with this question of ventilation.

For years friend Doolittle has been able to maintain a temperature of 45 degrees in his bee-cellar, with a variation of not more than two degrees. There is only one cellar in a hundred that will hold such uniformity of temperature, irrespective of conditions, outside. While the temperature can be kept uniform at the ideal point, 45, ventilation from the outside by means of ventilating-tubes or sub-earth flues would be of no advantage, and possibly might do a positive injury, in that the outside air would so *modify* the temperature in the cellar from high to low that the bees would get stirred up to activity and come out in much worse condition than if they had no ventilation.

A good many of our subscribers in a milder climate, if they were to follow implicitly Mr. Doolittle's practice, would, I think, meet with disaster unless they could have precisely the same conditions he has in his cellar. We have tried repeatedly to winter bees in our locality on the plan Doolittle describes, and almost every time we have lost half the bees, the survivors being so weak as to be practically good for nothing. We recently built one cellar on much the same lines as the Doolittle plan, first without ventilation, and over half the bees died. Why? Because the temperature inside could not be controlled. In our locality we have in midwinter a good many warm days, the temperature sometimes going up to 70. This may last a good part of a week, then the mercury may go down below zero. Experience has shown that extreme cold is not nearly as detrimental as a very warm spell lasting for several days, for this modifies the temperature of the earth so the cellared bees are aroused to an unusual state of activity by reason of the temperature going up to 60 or 65. In the bee-cellar where we have had such good success we have given a large amount of ventilation—had to because the temperature would vary all the way from 40 to 60. The outside air freshens the inside air, and at the same time lowers the temperature slightly.

Toward the close of Mr. Doolittle's article, in the last paragraph, he discourages opening and closing entrances of outdoor-wintered colonies to prevent the flight of the bees. As mentioned elsewhere in this issue we allowed a part of our outdoor bees to fly two weeks ago when the sun shone warm and it was thawing well, and the rest we kept confined. The lumber-yard men reported (and I saw the same thing myself) that the snow for several hundred yards around was dotted with bees that were chilled in the snow, and, of course, would never come back. Obviously, if we had kept the entrances closed those bees that were lost by the thousands would have been saved. Later on when it becomes warmer they can take flight without loss.

Years ago Mr. Doolittle advocated this closing of entrances the same as I have been doing of late. He now doubts whether it pays. The one experiment mentioned convinces me that it has already paid here in Medina. The straw thrown over the entrances does not prevent ventilation. It shuts out the light of an inviting sun when the bees ought not to go out, and prevents cold drafts from blowing into the brood-nest.

No less a man than W. L. Coggshall, probably one of the most extensive bee-keepers in the world, concludes that the strewing of sawdust in front of the entrances in spring is time well spent. If the bees need ventilation they can push the sawdust away; but in the mean time the warm air is confined, preventing the chilling of brood, so vitally necessary early in the season.

But even the outdoor closing of entrances is something that hinges largely on locality. In Vermont and many parts of York State, where there are deep snows almost up to the time of warm weather, the entrances are closed automatically by the snow. Some years ago Mr. A. E. Manum, of Vermont, sent us a photo of one apiary where the hives were almost entirely covered, he himself standing waist deep in the snow. At the time, he reported that this snow was worth to him many dollars in bees and brood that were saved. Well, now, we who live in a locality where there is less snow should provide a substitute; and I know of nothing more available or better than loose straw or old hay—any thing that will shut out the direct rays of light and prevent chilling drafts of air at the entrances in weather too cold for a safe flight.

GENERAL
CORRESPONDENCE.

ROOT'S AUTOMATIC HONEY-EXTRACTOR.

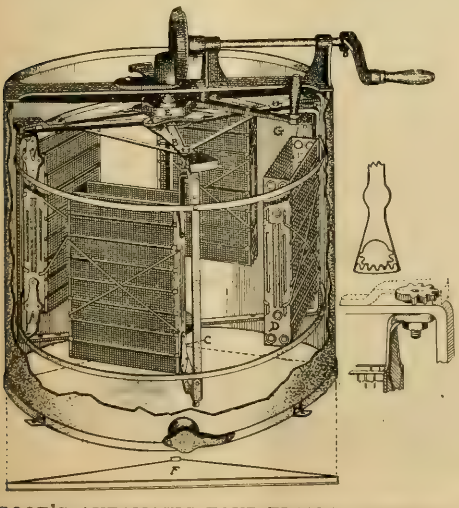
A Device for Reversing the Combs While the Extractor is in Motion, Without Slam or Bang; Running Extractors with a Gasoline-engine.

BY E. R. ROOT.

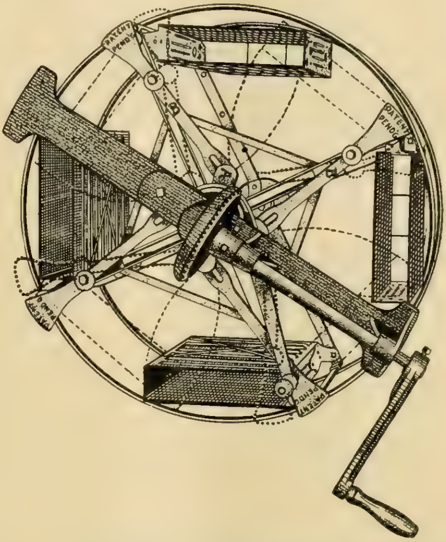
As previously announced in these columns, the foreman of our machine-shop, Mr. Frank H. Marbach, has invented and perfected a new mechanism for reversing four, six, eight, and ten frame extractors, and that, too, while the extractor-reel is revolving, without any slam or bang of the pockets. After the combs have been extracted from one side, a slight pressure on the street-car band-brake will cause the pockets to turn the combs the other side to so quickly that one is at first nonplused as to how the thing was done so neatly and quietly.

We have seen a great many reversing-devices; have tested many of them, but found them defective in one or more points, and generally complicated. Nor is this all. The mechanism is usually *under* the pockets where it becomes fouled with honey, and where, too, it is difficult to get at it to make the necessary adjustment or repairs. Nearly all if not all that we have seen put almost a breaking strain on the gearing and crank-handle, making the whole outfit short-lived.

The mechanism that Mr. Marbach has devised takes the strain entirely off the gears and the crank-handle, placing it on the heavy brake-hub which is amply strong. A pressure on the brake-lever retards and stops momentarily the reversing-hub while the reel continues to revolve on account of the inertia or momentum acquired, causing the baskets to be turned the other side to.



ROOT'S AUTOMATIC FOUR-FRAME HONEY-EXTRACTOR; SIDE VIEW.



ROOT'S AUTOMATIC FOUR-FRAME HONEY-EXTRACTOR; TOP VIEW.

By consulting the illustrations one will easily get the idea. Referring to the side view, with the side of the can cut away, G is the brake-lever; E the brake-band encircling the reversing-hub, already mentioned, with its four arms as at A. On the under side of these arms are downwardly projecting pins which slide in a rectangular slot in the reversing-levers B. These levers are pivoted to the radial channel-arms supporting the reel. On the other end is the gearing, consisting of an internal segment and a pinion, the latter bolted to the hinge of the pocket. The relation of these parts is shown in the small drawings at the right of the side view. The hub just back of the brake-band E, with its radial arms A, is journaled loosely on the extractor-shaft. In a majority of the reversing-devices, the whole extractor-reel with its pockets is journaled on the shaft, making a loose and unstable construction. In the device here shown the shaft is rigidly secured to the reel that holds the pockets and the entire mechanism.

The reel should be revolved so that the hinges follow (not precede) the pockets in the direction of revolution. The machine is then speeded up to full motion; and as soon as the combs are extracted on one side, pressure on the lever G retards and stops the brake-hub loosely journaled on the shaft, causing the arms A A to remain stationary for a moment while the reel continues revolving. The effect of this is to cause the reversing-levers B to revolve on the pinion until they reach the points of the dotted lines shown in the perpendicular view, when pressure on the brake-lever is immediately released. The machine is then speeded up, going *in the same direction* as before, extracting the other side of the combs. When the next set of combs are put in, turn the reel in the *opposite* direction and reverse under motion as before. When using the engine to be described it will be found necessary, because the reel must always turn in one direction, to reverse the pockets while the reel is at rest before putting in a new set of combs, then they can be reversed while in motion.

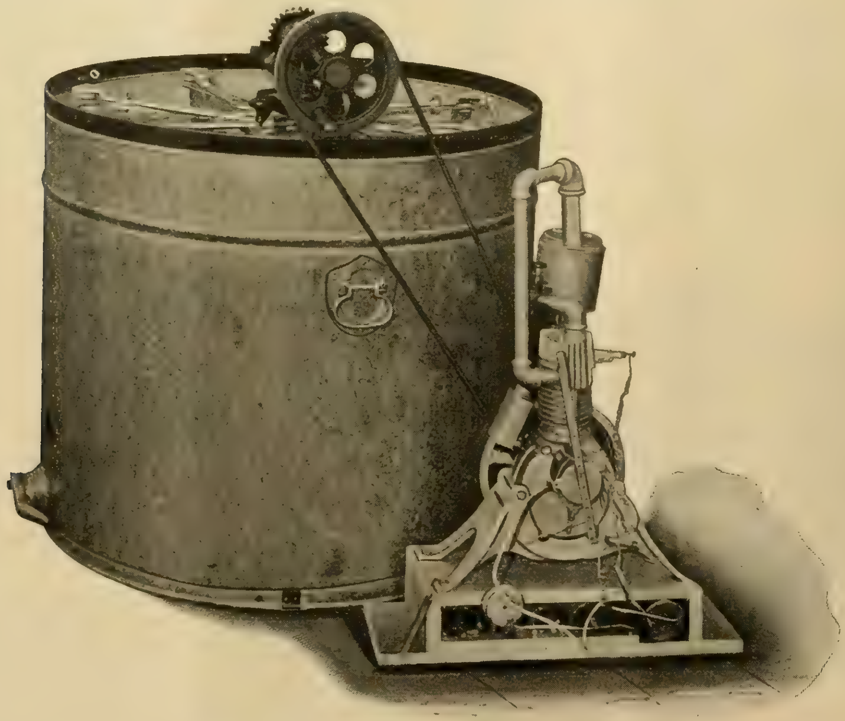
One *can* make the baskets bang in reversing, but there in not the slightest excuse for it if he learns the proper touch on the brake-lever—just enough and no more to cause the pockets to turn quietly to the other position.

Years ago Mr. J. F. McIntyre suggested a principle somewhat similar to this, using reversing-levers pinioned on the radial arms of the reel; but the idea contemplated the use of two spur gears at each end of the reversing arms and a reel loosely journaled on the shaft. As already pointed out, a loosely journaled reel on the shaft is a very bad arrangement mechanically; and, second, a spur gear will cause the end of the arm to project over in such a way as to interfere seriously with the removal and insertion of the frames for extracting. This, in fact, was our original plan; but Mr. Marbach very nicely overcame the difficulty by suggesting the internal gear that causes the radial arm to be pushed back away from the pocket where it can not in the least interfere with the reversing of the combs. But this is not all. It covers up the gearing so that baby fingers or parts of clothing can not be involved.

The reel is supported on a ball bearing so that the extractor runs with a minimum of friction. This bearing is in the cross-arm of the can, clear up away from any contamination of honey. The brake-band, which has been a feature of our extractors in late years, is still retained, and one may use it both to reverse and to stop the extractor.

Perhaps from this description it may seem that this device is complicated; but I may say to our readers that it is as simple as the Cowan, and, what is of considerable importance, it will be longer-lived because the strain is placed *equally* on each of the four pockets simultaneously.

Another feature of this new automatic extractor is the use of steel stampings, steel channel reel-arms—in fact, steel construction throughout except the gearwork; and even these are planed so they work as smoothly as cut gears.



ROOT'S AUTOMATIC EIGHT-FRAME HONEY-EXTRACTOR CONNECTED TO RUN WITH A SMALL GASOLINE-ENGINE.

POWER HONEY-EXTRACTOR OPERATED BY A GASOLINE-ENGINE.

When I was in California in the spring of 1901 I was put into the "harness" by M. H. Mendleson. He made me put on old clothes, and said, "Now, you bee editor, I want you to rub up against a problem, the *real thing*, and then, perhaps, with your factory equipments back of you, you can give us relief."

"I am at your service," I said, and I should say I was, for he put me to turning the crank of a six-frame Cowan. I sweat and puffed and blowed, and then I began to see there was method in Mendleson's madness, for he had the boys working up to a high pitch. Combs loaded down with thick honey from the mountain sage were piled on me so I did not have even a minute's rest. The sweat rolled down in great streams.

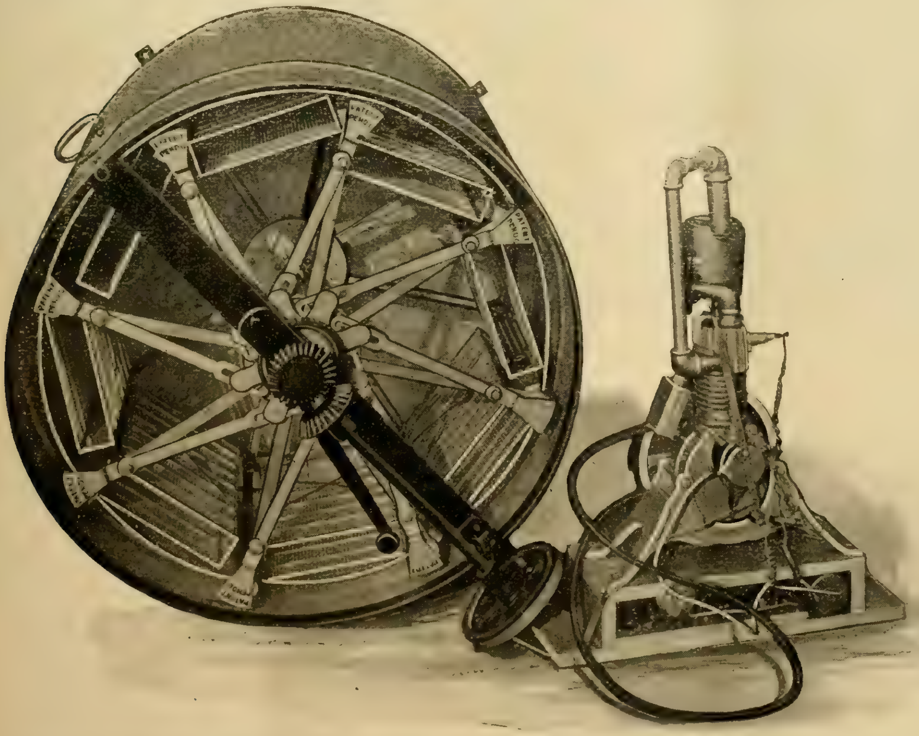
At just about the point when I was nearly tired out, but would not give up, Mr. Mendleson came in with a sort of sardonic grin, saying, "Say, Mr. Root, don't you think it would be a good idea for you to get up some sort of steam-engine to do this work?"

With a long breath, for I did not have very much to spare, I answered feebly, "Well, I should say *yes.*"

There was a general smile among the "boys." When I protested that Mendleson had not oiled his machine, which he freely admitted—didn't suppose it needed oiling—he said that did not alter the situation much, because it took a full man power at best to run one of these big machines.

Well, we have been working at Mendleson's problem of some cheap power to operate these extractors—something that any one could handle, at small expense. Huber H. Root, the youngest member of the Root Co., and one who has had much experience in operating gasoline-automobiles, was given the job of solving the problem. He worked at it off and on for several weeks, and the result of his effort is shown in the accompanying illustration in half-tone. A 1¼-h.-p. gasoline-engine, air-cooled, such as is used on motor-driven bicycles, is mounted on a suitable frame connected to the extractor by means of a round leather belt. The gearing is reduced because of the high speed of the engine.

At first we thought such a motor would not be practicable, as it could not be stopped and started as readily as a steam-engine; but this difficulty, we found, could be completely overcome by allowing it to run continuously, though slowly, when not doing any work. The extractor is stopped by removing the idler from the belt, thus allowing the motor to run alone, and applying the brake. A steam-engine, too, would cost twice if not three times as much as the gasoline-outfit; and, besides, it would require a great deal more fuel to do the same amount of work in the same length of time.



ROOT'S AUTOMATIC EIGHT-FRAME POWER EXTRACTOR TURNED ON ITS SIDE TO SHOW THE REVERSING MECHANISM AND GASOLINE-ENGINE.

I might explain that the gasoline-engines are controlled in speed by what is known as the "spark-lead," a device to cause an explosion of the gasoline mixture in the engine at varying points of efficiency. Another means of control is to vary the strength of the mixture by throttling the amount of air that is admitted with the vapor. But in very small engines like this, air control is not practicable, and regulation must necessarily be secured entirely by the spark-lead before mentioned. Well, this spark-lead Huber has completely under the control of the foot of the operator. Attached to the brake-lever is an idler pulley that increases or decreases the tension of the belt. The pressure on the spark-lead lever causes the engine to go faster, and the minute the pressure is released the engine slows down. A pull on the brake-lever stops the extractor and releases the tension of the driving-belt so that the engine continues to run very slowly, leaving the comb-pockets at rest. They are loaded up with combs, eight in all, as shown in the illustration. A pressure on the spark-lead lever causes the engine to speed up; the other lever increases the tension of the belt, causing the reel to revolve at a high rate of speed.

Let me tell you that the speed of a power extractor is away beyond what one can secure by ordinary hand turning, with even a four-frame machine. The fact is, if the combs will stand it the centrifugal force may be run up to a point where the combs are extracted much drier than they possibly could be by hand turning. This is how Mr. J. F. McIntyre effects an important saving in honey, for bees are inclined to gorge and waste honey when the combs are returned too wet with honey.

Perhaps some gasoline-engine man will say that an *air*-cooled engine like this would not remain cool when stationary and in a room. Huber has overcome this perfectly by directing the exhaust on its own cylinder-head as shown, causing a rapid circulation of air around the cooling flanges of the engine. So perfectly does this simple device do its work that he has operated the outfit for hours at a time without overheating.

As to the cost of operation, it takes when under full service about one pint of gasoline an hour.

Mr. H. J. Mercer, one of the most extensive extracted-honey producers in California, saw the outfit when at our place, and pronounced it perfect so far as he could see.

In large apiaries, where considerable extracted honey is produced, and especially where labor is expensive, these little power outfits ought to pay for themselves in one season, and ought to be good for ten and possibly twenty years of service, depending on whether the user followed the directions sent with the outfit, for no machine will run very long without an occasional adjustment and without oil at the right time and right place.

HOW OLD ARE WORKER BEES WHEN THEY FIRST GO OUT IN SEARCH OF FOOD?

Can Young Bees do all the Work of Feeding Larvæ?

BY F. GREINER.

It has been repeatedly proven that worker bees become field workers, under normal conditions, when about 18 days old. But when man interferes and disarranges matters in the hive, bees may and do go out when five days old. No feeding need be done to start them, either. You may remember one of my experiments, made a number of years ago, when I made up a small colony from brood-combs full of matured and nearly matured bees, with not one hatched bee in the hive—this, of course, during the honey-flow. From this colony bees came out of their hive on the fifth day in the afternoon. They had a flight, a play-spell, and then went to work at once bringing in pollen and honey like any other colony. They continued to do so. One of the combs contained just a little young unsealed brood and a few eggs, perhaps not more than fifty cells in all. These were given on purpose. The fact that this brood was not neglected, at least did not perish, I take as conclusive proof that young bees just hatched are not so very helpless "critters" after all. When such larvæ are neglected for but a short time they show the effect very quickly, as every bee-man well knows. I have not observed closely enough to know for how long time a larva might stand such neglect. It might be well for us to look into this matter before we advise the making-up of new colonies from the brood-combs of shaken hives without some bees. It will seem to me it would be placing an herculean task upon the shoulders of the young bees as they are hatching, when we expect them to administer to the wants of that large number of hungry larvæ contained in an average set of brood-combs. They can not possibly be equal to the emergency, although I have not made the experiment. I never had the courage to make it, and never expect to. It is too risky.

The combs of brood which I used for my experiment contained brood which was more than three days of hatching—some were emerging at the time. To obtain this brood, several queens had been taxed. Nice clean combs had been inserted in different hives at one and the same time, had been kept there for three days, when they were removed and placed in an upper story on some good populous colony with queen-excluding sheet of metal beneath. There was no question as to the age of the brood, and it all hatched. Ordinary brood-combs, picked up at random, even if all brood was sealed, would contain a good deal of it only just sealed, and a day or so after being sealed. I fear such brood would suffer if not covered with bees enough to maintain the temperature. It would be out of the question to depend upon artificial means to keep the combs warm. We seldom have such weather as would be necessary to prevent brood cooling off to a point of danger, and therefore I deem it a ruinous practice to leave unprotected brood to its fate in the way mentioned. There are better and safer ways to make increase.

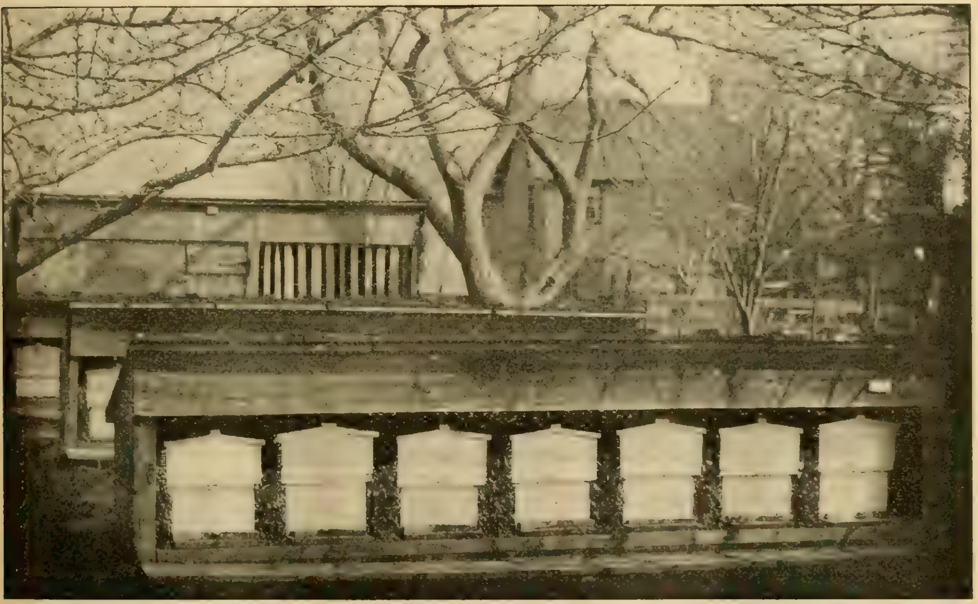
Naples, N. Y., Jan. 24, 1905.

HIVES PACKED IN MAPLE LEAVES.

Wintering Bees in an Open Shed Outdoors.

BY W. H. KIRBY.

The photo which I send you shows my method of wintering bees, which I have followed for the last 20 years with success. After the severe test of last winter, when all the colonies came through safely, I consider it a perfect system for outdoor wintering of bees.



WINTERING BEES IN AN OPEN SHED OUTDOORS.

The little sheds are 12 ft. long, 3 ft. high in front, and 2 ft. high at back. The roof is in four sections, cleated together; the whole rests on a floor. The hives rest on 2×2 strips. There are seven hives in each shed, spaced evenly. The covers of hives are deep, and are clamped on so the leaves won't raise them up. Under each cover is placed a box 4 inches deep, with burlap bottom, filled with wheat chaff. This chaff-box is the same size as the hive-body, and rests on the hive true and even. Between the hives, and under them, and in an eight-inch space at the back, maple leaves are crowded in as closely as I can pack them, right up to the top of the hives. The front is left open, but a board stands on edge across the front of the hives to keep the sun from shining in the entrances, though not high enough to keep it from shining on the ends of the hives above the entrances, so it can melt the ice that forms on the inside on cold cloudy days and nights. Entrances are left open from two to three inches, and are raked out with a heavy hooked wire every week, and in severe weather are looked after, so they don't get filled up with ice from the moisture coming from the bees. I am convinced that bees packed as described will winter successfully in much colder climates than this.

Oshawa, Ont., Feb. 16.

THE PRODUCTION OF EXTRACTED HONEY.

How to Get Quantity and Quality at the Same Time.

BY VIRGIL WEAVER.

I want a few words in regard to "Quality, not Quantity," discussed nearly a year ago in GLEANINGS. As between the two, and as I am in it for the dollars, I will take quantity in preference to quality, as your correspondent put it. The very idea of putting one 40-lb. super on a colony of bees and letting it remain until after the honey-flow! That will do for a man who has plenty of money, but not for me. I will tell how to get quality and quantity at the same time. As soon as your colony has eight well-filled frames of brood and bees, take one frame of this brood and bees (but not the queen) from the center of the hive. Put in its place a comb of honey with the cappings all broken, unless there is honey coming in. Then an empty comb is better. Now place a wood-zinc queen-excluder over the hive. Over this place a full-depth body. In this second story place the comb of brood and bees with an empty comb by the side of it, if honey is coming in. If there is a dearth of honey, place a comb of honey, if you have it. If you have to feed, place your feeder in this upper story. If your queen is a good one, in three days you can take out another comb of brood from below, and place it above as before, and so on until you have the upper story filled. If, by the time your first combs are about all hatched, honey is not coming in freely, place the upper ones below for the queen to refill. This will give you eight combs hatched and eight ready to hatch. By the time the second eight hatch, or before the bees get crowded, place a shallow super of drawn combs over the deep one. This super will catch your first honey. As soon as it is sealed in the center, place it down next to the brood-chamber, but above the queen-excluder. I will explain the reason for this. If you leave the full-depth super next to the brood-chamber, the bees will leave at least one-third of the combs for the queen; and as she can not reach this empty space it is a clear loss. By placing the shallow super of sealed honey next to the brood-chamber. all the space above the queen-excluder will be filled with honey. As soon as the deep or top super is three-fourths full, raise it up and give another shallow super of drawn comb. You had better not trust this colony to draw out foundation, for if you do you will find half a bushel of bees hanging out on a limb enjoying the fresh air and sunshine, some day, when you would rather they would be getting honey. Take colonies that are just strong enough to fill one shallow super. Put in one or two drawn combs; fill the rest with foundation; place over this the weak colony, and they will give better satisfaction than the stronger ones.

To get full-depth combs drawn, take combs of brood that are ready to hatch, from the brood-chamber, and place above or build nuclei of them for your increase. Place the foundation in their place, and it will be full of eggs in three or four days. The above method will give one full-depth super of 40 lbs., two shallow supers of 50 lbs., making 90 lbs. This, most seasons, will be as much as you will get, and this, too, of well-ripened honey of the very best quality. One year in about five this 90-lb. surplus arrangement will not answer. What, then, must we do? If honey is coming in with a rush, the three supers will be filled before the second or deep super is sealed. In this case take the four middle combs out of the deep super, and extract them; place the deep super between the two shallow ones, and by the time they will need more room you can take the shallow super from the top. Place it next to the brood-chamber; take the bottom super, which is now well sealed, and extract it, placing it between the deep and shallow super; and by the time it is filled, the deep super will do to extract, taking out all of the combs this time, and so on as before, always using your own judgment as to whether the honey is ready to come off. It must be sealed before it is extracted, if you want quality. If you want quality *and* quantity you must have empty combs to hold at least 90 lbs.; and if you have enough combs to hold 115 lbs., all the better—that is, three shallow supers, one deep super. This would make a hive forty inches high. It will not blow over if it is full of honey. Four shallow supers make a good hive; but by using one deep super as above you can get eight extra combs of brood to fill all this hive space. This combination gives three good results: First, quantity; second, quality; and, third, it does away with swarming. Not one colony in ten, on an average, will swarm. This year, out of sixty colonies treated this way, not one swarmed, and in a honey-flow, too, that gave 80 lbs. per colony.

Washington, Ia., Aug. 29.

THE HOFFMAN FRAME IN JAMAICA.

The Unsuitableness of Loose Frames for Beginners; How the Hoffman Can be Handled in Twos and Threes.

BY GEO. W. PHILLIPS.

Of all the frames I have used, the regular thick-top-bar Hoffman is by far the best. The good features that are enumerated are not herein stated for the first time; but I wish simply to show how they have recommended themselves in my own experience.

The Hoffman is a self-spacing frame. This is one reason why it is discarded by some and adopted by others. When I started in the bee business, and before I had purchased a stock of supplies, the nucleus that I had bought built up so rapidly that I had to obtain a ten-frame hive with old-style Langstroth frames from a neighbor, and transfer from the shipping-box into it. A heavy flow was on, and in two weeks or less every comb was built. But I was a novice, and you should have seen those combs! Some were veritable slabs of honey, while others were little better than foundation. Now, beginners are not the only ones who make these blunders in spacing. Why, I have been to apiaries owned by fairly competent bee-keepers where the unspaced frame was used, to find ill results of the same nature. Spacing frames with the eye is at best a hazardous method, and not to be depended on.

Every apiarist knows that, as the frames are placed, so the combs are built. Let a frame be spaced badly during a honey-flow. Try to fix the combs after, and see the result. Indeed, it is sometimes difficult even to remove them from the hive. I admit that fairly even spacing can be done with the loose frame; but this takes time, and is imperfect at best. With the Hoffman, every frame is spaced with mathematical correctness, and the apiarist can at any time turn them around or interchange with other hives without having the sides of one comb colliding with that of another.

The argument is commonly made that, in handling the Hoffman frame, one is more apt to kill bees. I don't think so, for the reason just mentioned. Bees are more likely to be killed by the rubbing-together of comb surfaces than at the thin points of contact of the frames. In self-spaced frames, as we have shown, the combs are evenly built, and danger on the former score is removed, while with an unspaced frame some combs are bound to be unevenly built, and there is no knowing when one is going to "butt" into the other. There is no necessity of killing bees at the point of contact with spaced frames. A whiff of smoke on the right spot is all that is necessary. Further, our Hoffman frames need not be handled one at a time. Sometimes the greater number need not be pulled apart at all, and frequently one has only to push six or eight at a time into position with his hive-tool. There is no more danger of killing bees in handling those six or eight frames than in handling one, for in either case the same points are brought together. On the other hand, when loose frames are used they must be manipulated one by one, and the danger of crushing bees is thus increased.

Furthermore, this handling of frames two or more at a time is a great labor-saving plan; and yet a plan, I must confess, not adopted by some of the users of the Hoffman frame. I want to break up a few strong colonies into nuclei, and, having my new hives in position, I pick up two frames in each hand, three if necessary, and distribute them around to my heart's content. Try this with the loose frame and see the result. No, sir; one at a time is the law of the loose or the staple-spaced frame. A swarm of bees clusters some distance from the apiary, and, owing to its bad location, I find it necessary to hive it on the spot and bring it home at nightfall. With Hoffman frames, o.k.; but with loose frames, unless I do some carpenter work first, the combs are likely to be in one corner of the hive when I reach home, and a large number of bees pressed nearly as flat as ferns. I want to move 50 colonies to a location ten miles distant to take advantage of a honey-flow there. With loose frames, hammer, saw, and rule and nails, to say nothing of smoke and muscle and stings, are brought actively into play ere the frames can be made to remain spaced. With fixed frames I am always ready to start. These are but a few of the many instances that are frequently occurring, in which time, patience, and labor are saved by using the Hoffman frame.

Now, there are objections to the thick top-bars, on the ground that bees build brace-combs between them. In my experience this has been just as true of the thin top-bars. Do you recall, Mr. Root, those colonies we bought from farmer Witter last summer? Well, most of them were on the old-style Langstroth frames; and I tell you I should like every advocate of the thin top-bar to have seen them. There were burr-combs below and at the sides, and on top of them. I tell you I had to do some lively carving before I could sever the connections. And this has been more or less my experience with thin top-bars. The bees were not satisfied simply with building brace-combs, but they would often extend the comb proper upward until the sides of the bar were covered, and then sometimes they would climax their work by building on top as well.

I run all my colonies in Jamaica for extracted honey, and use only eight Hoffman frames in a full-depth ten-frame super (the frames then hang loosely, but there is no necessity for absolutely correct spacing in supers). The plan is an ideal one, and there is some weight to the combs when completed. Try this plan with the thin top-bars, and see the result. Indeed, they soon get bent entirely out of shape.

An objection is made to the Hoffman frame on the ground that the spacers are in the way of the knife when uncapping. Strange that, in all the years I was engaged in producing extracted honey, I never was troubled along this line. Although I have uncapped many thousands of combs, I can't remember having cut off a spacer; nor can I recall an instance in which it was done by any of my assistants. In fact, we never thought of them. Perhaps, however, the wide spacing of our super frames, and consequent thickness of the combs was accountable for this.

But the most serious objection to the Hoffman frame arises from the propolis difficulty. I am, perhaps, in as good a position to appreciate the validity of this objection as any one else. There are times in Jamaica when a man has actually to use his hive-tool crowbar fashion in order to remove a hive-cover. This is especially the case when bread-fruit gum is being gathered. Under such conditions one might be inclined to think it impossible to use the self-spacing frame; but it is not so. The secret of the whole matter is in keeping the frames tightly crowded together. Then the combs may be separated with a hive-tool, and colony after colony examined with little difficulty. If the frames are left hanging loosely, however, then there is trouble, and the spacers will often split off completely in the effort to separate them. Yet, obviously, the bee-keeper and not the Hoffman frame is responsible for this.

I hold to the theory of the survival of the fittest. Nearly all the large bee-men in my country started with the loose frame and thin top-bar, because they were standard then. To-day, in spite of the fact that extracted honey is almost entirely produced, and that the propolis difficulty is especially trying, they have adopted the self-spacing Hoffman. I submit it as my honest opinion that the standard hive fitted with Hoffman frames is by far the most practical device for honey-production on the market.

Denison University, O.

TROPICAL NOTES.

Some More Good Honey-plants.

BY W. K. MORRISON.

Bee-keepers who are compelled to use sugar as a bee-food, and who are distressed by the present high price of that article, can rest easy. Every available piece of land in the West Indies is being planted in sugarcane, which means that, in a very short period, sugar will be cheaper than ever before.

One result of the present excitement in sugar circles is that the royal palms and other fine bee-plants are being ruthlessly cut down to make way for King Sugar Cane. It is a pity to see the magnificent "princes of the vegetable kingdom" cut down to make way for one or two crops of sugarcane. The charm and beauty of the Portorican landscape lie largely in its splendid royal palms (*Oreodoxa regia*), and to see them cut down is a mortification.

Sulla clover, or *Spanish sainfoin*, as it is termed by Italian seedsmen, might prove of value to Cuba, and Porto Rico more particularly, where there is a pronounced dry season. In any case I am safe in saying both the northern and southern sainfoins offer a splendid opportunity to bee-keepers all over the United States. Sainfoin makes a better hay than alfalfa, containing less woody matter.

Porto Rico is all right as a bee country, but the apiary must be located in the right spot; and to find the right spot is not an easy matter for a "greenhorn." American conditions of life are entirely different from Cuba, Jamaica, or Hayti. Porto Rico has been a well-cultivated, populous country for more than 200 years. The population is largely white, which is a very striking fact for a tropical country.

Gleanings contains a number of advertisements, all good in their way, but one is lacking. There should be one of the necessary apparatus for making wax candles, same as used in Catholic countries. The making of wax candles and tapers offers a lucrative business to bee-keepers in many countries. In Brazil, wax from the wax-palm offers a cheap substitute, but it is not the real thing.

A good many of your readers in tropical countries do not seem to realize the transcendent merits of the wax-press. Perhaps this is due its name. Few seem to realize its value as a honey-press. If queen-excluders are used it becomes simply fun to take off a crop of honey and squeeze it in a wax-press. If care is used, there will be no need to get up steam, though it is better to use steam to improve the appearance somewhat, and otherwise make it more available for export. Exporting beeswax is a great business for tropical countries, actually comparing with the exportation of gold. Silver fluctuates more than beeswax.

The tropics and the arid or semi-arid countries will dominate the honey and wax markets of the world in the days that are to come. Which is best is largely a matter of taste and temperament. Both have their advantages and failings.

That exquisite tree of the hot-houses, the *Grevillea robusta*, is an excellent bee-plant, ranking with the best. It grows into an immense tree 150 feet high, so that the ladies who cultivate it in pots would hardly recognize it. This tree belongs to the family *Probeaceæ*, which seem to me to be always nectar-producers wherever they may be found.

Another very nice nectar-producer is *Grewia columnaris*, a native of the Eastern tropics. I should like to see it more common in the West than it is. No wonder it produces nectar in abundance, as it belongs to the *Tilia* family, linking the tropics with the linden of Europe and the basswood of America.

The great nectar-bearer of the Hawaiian Islands is the algarroba; but what is meant by this name? Is it our old friend, the saman, or rain tree (*Pithe colobium saman*)? Who can give us the true name?

After the Agricultural Department has imported its honey-plant seeds from Europe, let it follow up with an importation from Australia and Oceania, where there are many fine nectar-bearing plants. There is also a great plenty of such plants in South Africa, particularly bulbous and arid-resisting plants. By the way, that exquisite bulb, the freesia (*Refracta alba*), is a very fine honey-plant, and so is the buttercup oxalis.

Semi-arid countries are great on honey-plants, and Australia, South Africa, Tunis, Chili, Egypt, California, and Mexico have been very imperfectly called on to contribute their mite toward helping bee-keepers in the United States. Baron Mueller's book on extra-select tropical plants mentions quite a number of little-known bee-plants.

TAKING GLEANINGS FOR THE BOYS.

My boys have learned so much from your valuable journal in the way of bee knowledge that they can not get along without it. They have increased from 6 colonies to 21, and have taken as much as 110 pounds of honey from one colony, fine comb honey, and they are expecting great things the coming season. We all enjoy the Home papers, and read them as soon as we get the paper. J. F. Weber.

Iuka, Ill., Feb. 6.

SUGGESTIONS FOR THE NATIONAL ASSOCIATION.

A Director for Every State Having a Sufficient Number of Members; Official Seal for Advertising.

BY WALTER S. POUDER.

As a friend and member of the National Bee-keepers' Association I wish to offer a few suggestions as to its work for the best interests of the membership. I have made many efforts to increase the membership in Indiana, but most of my efforts have been futile. Bee-keepers whom I have considered good material for this Association answer me that they can not see where they will be benefited. They say that they do not intend to quarrel with their neighbors about their bees. Many have the impression that the Association is intended principally to protect those who do not get along well with their neighbors. When asked why I am a member, and how it has benefited me, I simply have to say that I am a member because I considered it a good class of men to be associated with. I have kept bees since 1877, and in several localities in this city; and, so far as I can recall, I have never had a neighbor who did not admire my bees. A few pounds of honey distributed among my neighbors is advertising that has brought as good returns as any advertising that I have ever done. I admit that localities where there are great vineyards or extensive sheep-ranches might change the matter entirely, and that in some cases bee-keepers might be greatly imposed on; but I can not help thinking that in any case of quarreling among neighbors there is a better way to settle the matter than through the efforts of an attorney. I never have and never will appeal to the Association for aid in fighting my neighbor.

I have one or two suggestions to make, and in doing so I am voicing the sentiment of a number of Indiana bee-keepers. I would suggest that, when a State has secured a certain membership, that State should be entitled to a member of the Board of Directors. He should be one who is sufficiently interested in the work to perform his services free of all charges.

Members should be supplied with an electrotype with which to print the official seal and guarantee of purity on their regular labels, in printers' pale ink, color to be named by the Association. Members asking this favor should apply to the local director, and stamps should be furnished by the Association at the Association's expense, suitably worded, and bearing the autograph signature of the secretary. This would be similar in some respect to the method adopted by Uncle Sam a few years ago when we had our checks and drafts stamped.

I would also suggest that a certain per cent of the funds be placed by the manager through some reliable agency, advertising honey bearing the label of the National Bee-keepers' Association. Reproduce the label in all advertisements, and wording could be made very interesting to the general public by explaining granulation, "manufactured comb honey," etc., and many other points of interest could be mentioned.

I am convinced that such a procedure would bring a flood of increase in membership, and make the Association much more useful than it ever has been. Let us hear from others, as to how their ideas conform with the ideas expressed above.

Indianapolis, Ind., Feb. 6.

[There are some suggestions here that are worthy of consideration on the part of the membership.—ED.]

SHOULD THE NATIONAL BEE-KEEPERS' ASSOCIATION BECOME INCORPORATED?

Should it Undertake to Handle Honey and Supplies?

BY WM. M. WHITNEY.

Mr. Editor:—I notice from the report of the proceedings of the convention of the National Bee-keepers' Association, held at St. Louis, that the question of incorporation was up for consideration; that a committee was appointed to which the question was referred; that said committee reported its action, and asked further time in which to consider the matter, and was given until the next annual meeting in which to make a final report.

All members of the National have or should have an interest in this matter; and I take it that the committee, before making final report, would be pleased to have an expression of opinion from the rank and file of the membership upon so important a question. It was a wise saying of the chairman of that committee, when he reported to the convention, asking for further time in which to make final report, that it was of vital importance, and should not be acted upon hastily.

This may be considered purely a question of policy. All such questions, as a rule, have two sides to them; and, as we look at matters from our individual standpoint, which often differs from that of others'; it is hardly to be expected that our conclusions will be unanimous upon any subject which may be presented; hence it may not be considered strange if a difference of opinion should develop in this case.

In considering this matter, the prime question seems to be, "What is the object of incorporation?" What are we to gain by it? Is it for the purpose of doing business as a corporate body? Is it to give the National a standing in court? or is it hoped that, by incorporation, we may command greater respect from legislative bodies? Is it one or all of these? Let us take up these questions seriatim, and discover if we can what the results of incorporation may be.

We hear it occasionally whispered that it were a good thing if the National would undertake the marketing of honey and the handling of bee-keepers' supplies for its members; but when the matter is given serious thought it seems to me that no considerable number of persons could be found who would favor such a proposition. Such an enterprise would come into direct competition with many industries, the owners of which have done more to build up the National than any other persons connected with it. Such a course would plant within itself the seeds of discord, which, germinating, would culminate in disruption of the Association. Individual bee-keepers in localities could, if they would, combine their mites for the purpose of buying their supplies at wholesale, thus making a saving of expense. They could also unite to affect to advantage the price of honey in their immediate vicinity; but for the National to incorporate for this purpose for the whole country is not only objectionable for the above reason, but makes an unwieldy affair, involving no small expense to keep the machinery in running order. Added to this the liability of being involved in expensive litigation, with possibly a paid attorney by the year, insuperable objections to the National entering into any such experiment or enterprise will be seen.

Without dwelling longer upon this phase of the case, let us pass to the next question. Is it desirable to incorporate for the purpose of having a standing in court? Do the advantages exceed the disadvantages? If the National is permitted to sue anybody and everybody, it is put in a position to be sued by anybody and everybody. Even at best it would have a standing only in cases where the interests of the corporation alone were involved, but not where the interests of the individual member is affected. Were the National charged with adulterating honey, it would have a standing in court against the accuser, but not in the defense of an individual member who might be accused.

Newspapers and individuals may say what they please in a general way about the manufacturing of comb honey or the adulteration of extracted honey, or about any thing else connected with the business; yet there is no way of redress through the courts, even though the Association be incorporated. Neither could any member invoke the aid of the Association in its name, though he might be swindled by some commission house, or have his entire apiary stolen. Why? Because it is individual property, and not property of the Association. So far as the members are concerned, incorporation is but an empty name, yet likely to entail additional expense. Very few corporations worthy of the name but have a paid attorney by the year. Would the National be an exception to the rule? Possibly, but more than likely it would not be.

But what of the next question? Does incorporation give us any prestige before a legislative body that we do not otherwise possess? Well, let us see. It is said that, on approaching the law-making power for aid, we are confronted with the question, "Are you incorporated?" Now, from what experience I have had in like matters, that question should be regarded as a mere bluff —an easy way of getting rid of a matter which not in the least interests them. The Illinois Association is incorporated, if I am not mistaken; but its influence does not count, nevertheless, for its officers come to the Chicago and Northwestern and ask us to join them that they may have the influence of numbers before the legislature. Numbers, *numbers*. *Voters*—this is the power that sets the legislative machinery in motion to grind the grist of pure-food and other laws the honey-producers so much need.

When the Association can present to the politician the voter's argument of numbers, then it will have all the power it shall have any use for as an association. I do not mean to say that legislators are not willing to listen to argument, or that they are controlled by improper motives; but they must first become interested; and, if I'm not very much mistaken, political influence is very likely to have the desired effect. Organization of local societies all over the country where bee-keepers are found, with the express understanding that each shall become an integral part of the National, would do more to secure what has been so long sought than if we incorporated in every State, not excepting *New Jersey*. Use the surplus funds for this purpose, just as union labor organizations have done to increase their numbers, and it will not be long before the membership of the National will be swelled to 50,000; then the question will not be, "Are you incorporated?" but "What can I do for you?"

Incidentally another matter may be mentioned in this connection, which may have some bearing upon this question of incorporation. It will be observed from the report of the proceedings of the St. Louis convention that the proposition for an incorporation of individuals within the National was entertained, and to some extent discussed, by the members. Why any such matter should have been entertained to become a part of the proceedings might be a query in the mind of a critical parliamentarian, but such seems to be the fact. Now, suppose we incorporate and encourage such an affair —become a sort of foster father—how long do you suppose it would be before the child would be using the parent for his own advantage? It would be another case of "a wheel within a wheel"—a case where "the tail wags the dog," very much to the confusion and bewilderment of the dog.

If individuals, as such, desire to form an organization for the purpose of handling bee-keepers' supplies and the products of the apiary, that is their matter, with which no member of the Association should interfere; but from the program so far as developed, the Association seems to become a sort of sponsor for such an organization, else why was the matter entertained—a committee appointed, and the matter made a part of the records? It were far better did the National take the initiative and open up shop for business than to become thus involved. In either event, as before stated, the seeds of discord will have been planted to ripen into bitter fruit. To both of these propositions, as a member of the National who desires nothing less than its complete success, I most earnestly object.

Now, Mr. Editor, but a few of the salient points in this vitally important matter have been hinted at. Much more may be said, and yet the subject not become exhausted; but as a member of the Association I am anxious to hear what the majority think on this subject; and if these few hints shall set the members to thinking and talking, so that the committee shall have the benefit of the judgment of the rank and file, my object will have been accomplished.

Lake Geneva, Wis., Feb. 4.

DOES FREEZING KILL BEES?

A Request for Scientific Investigation; an Incident Showing that Freezing is only an Indirect Cause of Winter Losses.

BY WM. A. STEWART.

The discussion on the subject of freezing proves that there is at least one point in the nature of the bee that is not fully understood. I wonder if Dr. Phillips could not investigate this subject and tell us just how it is. Meanwhile, since we are hearing opinions based on practical experience, please allow me space for a few remarks which I hope will be useful.

On page 11 Dr. Miller quotes Mr. Abbott, and then asks, "What number of bees must be reached before they will stop freezing and begin to starve?" Now, doctor, I am afraid he can not tell you; but, while it may seem a paradox, I think we can find substantial data to support the theory that they freeze first and then starve. It makes no difference (except as to time) whether there is one bee or a whole colony; and, so long as they are helpless, it makes no difference whether they are frozen as stiff as icicles or only chilled. In either case they will die if not relieved soon enough, and in either case they are all right if warmed in time.

Feb. 14, 1904, I found a colony in the yard, out of stores, and frozen. They were discovered by listening at the entrance for the slight sound which bees always make when in normal condition. When the hive was opened in a warm room the bees were found so stiff they would make a noise like some hard substance dropped on the floor. The mercury that morning was five below zero, and, after the bees became helpless, the air inside the hive must have cooled to about the same temperature, for they were so cold that frost formed on their bodies in the warm moist air. However, when taken out of the hive, and well warmed near a stove, nearly all the bees in the cluster resumed activity, and were ready for something to eat. They were put back on well-warmed combs, given some unfinished sections, and put in a cellar. We did not find that either queen or workers were injured by the freezing, being a valuable colony the past season.

As to the length of time they had been frozen, they were flying twelve days before, and the cold spell had lasted five days when they were found, the mercury being one morning nine below.

Now to draw our conclusions:

1. These bees froze without starving, for they were not dead. They froze because they were out of food, which means in this case out of fuel. They had gone safely through colder weather, and been able to take their honey, even from the remotest corners of the hive.

2. Freezing did not kill them; and probably no amount of freezing to which bees can be subjected by the climate of the United States will of itself cause their death. It is fatal indirectly when there is honey which they could otherwise reach.

3. If the above colony had remained unaided they would have died by starving, or possibly from the effects of the wetting they would have received in thawing out; and all frozen bees might be saved if taken in time.

I give this theory because it is in accord with all the known facts in the case. If any one can show it to be erroneous I shall welcome better information.

Elkin, Pa., Jan. 17, 1905.

[I believe that Mr. Stewart is right—that the bees do not freeze to death, for numerous instances have shown where bees have been frozen so solid that they were fairly brittle, and remained so several days, but when subjected to warmth would revive. But if they go too long in a frozen condition without food, their vitality is weakened and they die. I always feel that, in a very cold winter, without an occasional warm day, the outdoor bees are liable to suffer because these bunches are not able to warm up enough to move over where there is honey. Last summer we put cages of bees on blocks of ice in the refrigerator for three days. They were stiff and cold, but invariably revived on being warmed. We did the same thing with queen bees, without apparent harm. If I am not mistaken, Mr. Stewart states the exact position held by Mr. E. T. Abbott, editor of the *Modern Farmer and Busy Bee.*—ED.]

MIDWINTER FLIGHTS.

A High Temperature Not Desirable; Importance of Having a Thermometer in the Proper Place; Hard Candy as a Food.

BY ALLEN LATHAM.

Mr. Root:—Two paragraphs by you recently in GLEANINGS raise questions in my mind, and I wish to say a word in opposition to one or two statements.

On p. 63 you tell Dr. Miller that you prefer a temperature of 65 to 70 for a winter flight. May I ask where you keep your thermometer? Why, sir, if we waited in New England for such a temperature our bees would not take a flight from the middle of November till the middle of March one year in ten.

I used to say that a temperature of 49 in the shade was sufficient, but I now know that much lower than that will do provided other conditions are right. Permit me to define the conditions which make flight possible or advisable.

If the air is warm enough to soften the snow in the shade (a temperature above 32 will do it) bees can fly with safety from hives situated in sheltered positions of south exposure, provided the air is still and the sky clear. Only a few bees will be lost by alighting in the shade or through weakness.

If the air is 45 the bees will fly safely, even though there is some wind and a few small clouds; but large clouds and steady or strong winds will cause considerable loss. If the temperature is above 55 the bees can fly with comparative safety, even though the sun is not shining and the wind is blowing. In this case it is always a south wind.

Dr. Miller was right to let his bees fly with the temperature at 44 if his thermometer hung where neither direct nor reflected sunshine could strike it, and where it could not gain warmth from bodies warmer than the air. January 1, 1905, furnished a splendid flight for bees here, though the temperature went no higher than 46 in the shade. Bees cleaned house, and even started a little robbing.

I would say here that I have succeeded in getting a fairly good flight from a colony with the temperature only 32, and should not be afraid of 34 or 35 for a general flight with the air still and sky clear. Last winter, from the middle of November till March 22 the temperature did not reach 40 except during a night when the wind blew from the south. On only one occasion did the temperature rise to 35 unless accompanied with cloudiness. On that occasion I laid sacks and carpets in front of the hives and scattered hay over the snow where the bees would be most likely to alight. I succeeded in getting satisfactory flights from those colonies favorably situated, the colony which flew most coming out in spring very strong in numbers, and vigorous.

The fact is, few people have their thermometers so hung that they record the temperature of the air, recording only the temperature of the object upon which they hang or the temperature of the air in a sheltered porch. Every bee-keeper would do well to hang a thermometer in a box opened to the north. The box should be painted white, and the thermometer should hang freely from the top without contact with the walls of the box. Try this, and I think you will deduct at least 15 degrees from the temperature at which you would like to see your bees fly, or else Medina is a blessed place for bees.

With the air at 65 to 70 one could sit outdoors without hat or wraps, and read without any discomfort. He could not work about the hives with any comfort unless he took off coat and possibly vest. No, you would not want to see such unseasonable warmth, even for the bees, for harm would come from it to fruit-trees and vines.

On page 32 you advise the feeding of hard candy. Have you had much experience in feeding that, and with success? I wiped out nearly a whole apiary one winter, following exactly the directions to be found on p. 32. I found it impossible to get the candy cooked enough without burning the honey. Those colonies which had cakes but little burned lived through, weak: those which had the worst-burned cakes died.

Again, honey is deliquescent; and if the winter comes on damp, the cake will gather moisture faster than the bees can use up the honey; or the weather may turn so dry that the bees might as well try to eat a stone. There are much better ways to feed bees in winter, especially in a cellar, and beginners or inexperienced hands would do well to fight shy of hard candy.

One good way is to cook white sugar and water to a temperature of 230 degrees, or till it will stir to the consistency of the inside of a fresh chocolate-cream. It must not be so soft as to run down upon the bees nor so hard as to dry up. This is a much safer cake to lay over the frames.

One can fill a jar with honey and invert it over the frames on a cloth, or a piece of glass with a pin under the edge. But, best of all, lay some comb honey flat over the frames.

Mr. Neff can feed his bees in the feeder provided he makes the syrup so thick that the bees will not be roused to an excited state in their efforts to evaporate excessive moisture. The syrup should be as thick as honey, nearly. If he will do this he will, in my opinion, do better than to feed with hard cakes.

I write this that I may save Mr. Neff and others from possible and probable disaster by trying a method of feeding which is not safe without previous experience.

Norwich, Conn.

[Yes, I did say I preferred 65 or 70 degrees; but I did not mean to say that I would not take a lower temperature when the bees can fly. Sometimes 45 to 50 is warm enough, and at other times it is too cold. A good deal depends on whether there is a wind blowing, and the amount of snow on the ground. A few days ago it was about 45. Bees were flying well, but we lost thousands of them on the snow. Why did we let them fly? Half of them were allowed to fly, and the rest were confined with straw over the entrances. I am satisfied that, if all the bees had been confined, those that were lost in the snow would have been saved. A good deal depends on conditions.

Years ago A. I. Root used a large amount of hard candy without any bad results; but this was made by a local baker at the time. Possibly it contained a little glucose; for candy will not usually assume a transparent glass-like condition without glucose or honey. We would not use glucose under any circumstances. Now, it is possible that honey, because of its liability to burn, *may* make an unsatisfactory winter food. However, we are wintering some of our colonies on the very same food that you condemn. But it is possible that the average bee-keeper had better make a soft candy of the kind you describe, not using either honey or glucose. We have used a good deal of queen-cage candy, but much of it is lost in the form of granules rattling down on the bottom-board, and then being carried out.—ED.]

BROOD-REARING INDUCED BY MIDWINTER FLIGHTS.

Remove the Bees Early in Spring, and Leave them out.

BY O. H. TOWNSEND.

Mr. Root:—In a recent issue you ask for reports on moving bees from cellars in midwinter for a cleansing flight. I used to practice it; but since I quit taking them out for such a flight my success has been much better. It causes the bees to start brood-rearing, which uses up the vitality of the old bees. I think winter or early brood-rearing is the main cause of spring dwindling.

For the last ten years I have removed the bees from my cellar just as soon as possible after I could see any bees bringing in pollen, which is generally in March. I move them out in the evening, so they get quieted down over night; and if the weather is too cold for them to fly they stay in the hives.

I notice by referring to records that I have removed them from cellars just about the *13th of March several seasons.* I would by no means return them to the cellar, even if snow comes, bringing with it zero weather, as I find the cold does not hurt them in the least. On one occasion we moved the bees out, and the next morning there was four inches of snow at a temperature of four below zero. I was quite alarmed for the safety of the bees; but, although they did not fly for over a week, they were all bright and healthy.

If they are returned to the cellar after having a flight they invariably go to rearing brood, no matter what the weather is outside. If the bees are left in the cellar late when it is necessary to open doors at night to keep the temperature down, it keeps the bees uneasy. This, too, will cause them to start brood; while if they are taken out early, and left out, they will rear brood only as weather permits, thereby saving the vitality of the wintered bees until we have "bee" weather.

When you take your bees out for a cleansing flight, leave ten average colonies outdoors. They do not need to be packed—just leave them alone with tight covers, and see if they do not come through in better condition every way at the commencement of the honey season. If they are damaged by leaving them that way I will agree to pay you all the damage or the difference in the average value between the ten and the ones returned.

If I lived further north, where spring is later coming, I should not expect to take the bees out quite so early, as the weather would be such that the temperature would keep down in the repository later. I aim to hold the temperature as near 45 as possible, and it does not get more than one or two degrees below that, and not over three or four above 45, except late in the winter.

My best cellar is arranged so I can more than double its capacity or room by opening doors. As to the weather, I sometimes open or close these doors to help regulate the temperature. With good stores the loss in wintering and spring of bees need not be more than with any stock—sheep or cows, for instance. For cellar wintering, the long cold ones suit me best, and the bees are the most quiet.

All the bees I lost last winter of those wintered in the cellar were from starvation late in winter and spring, the bees having used about double the amount of stores that they have for any time previously for years.

Otsego, Mich., Feb. 24.

A WINTER FLIGHT SOMETIMES A NECESSARY EVIL.

Generally Speaking, Not to be Advised.

BY C. A. HATCH.

When I commenced to keep bees it was almost the universal custom to set them out during February or early March for what was called a cleansing-flight. But some began to doubt its advantage, and to experiment; and the result was, all were willing to forego so disagreeable a job where the results were in doubt, or, as some claimed, a positive injury. Various experiments were tried, among them setting out for a week or as long as warm weather lasted, then returning; leaving out for one day only; packing in chaff and leaving out permanently; but among all such experiments none seemed to prove that the bees were benefited enough to pay for the extra work.

My own experiments went to show that, if bees were uneasy, and spotting their hives, it could be stopped for a time by a flight; but if a certain time intervened between this flight and the setting-out time, say three weeks or more, it was a real injury to the bees. The reason, it would seem, is not far to seek. When we know that a disturbance like a winter flight will start brood-rearing, and that the eggs laid by the queen will be out of the cell in three weeks, it would go to show that these young bees ought to be out in the sunshine instead of a dark cellar, and their uneasiness and irritableness only added to the trouble we were trying to help.

Any thing that excites bees takes from their length of life; as their life is not numbered by days but activities, and all our effort in wintering has been, and properly should be, concentrated on how to cause them to remain in that quiet semi-dormant condition so much to be desired. Is it desirable for us now to begin backward and introduce a very disturbing element? Some one might say the excitement will come any way, when they are set out. Admitted; but it will be for only once, and why double their troubles? A man with weakened vitality might be able to saw a cord of wood in one day; but to saw two cords in two days might be the death of him. Our bees are weakened by cellar confinement; and if we take extra vitality from their already weakened powers we must expect to shorten their lives and prepare for spring dwindling.

There are times, however, when bees are wintering poorly and it seems almost impossible to keep them in the hive as they are so restless that a flight might help matters, not as a good thing of itself, but as a choice of evils. Under such circumstances I could see where it might be of great benefit to give them a chance to breathe fresh air and feel the sunshine, provided this time of exercise could be so timed that the permanent setting-out would come before the bees again became restless, say inside of three weeks.

CONSERVING ENERGY.

All a bee-keeper's effort in spring management is, or ought to be, directed to conserving the vitality of the remaining bees that have lived through the winter; for on these, he knows, depends the caring for the brood that is to fill his hives for the summer start; and why we should want to wear them out by excitement on a winter flight is not comprehensible. We say, go slow, prove it first.

Richland Center, Wis.

WINTER FLIGHTS.

Indications when they are Necessary.

BY G. BOHRER.

My experience has led me to conclude that if bees, when put into the cellar or other indoor respository, remain quiet in a temperature of not less than 35 nor higher than 45, they may be regarded as in perfect health, and should not be molested until they are put on their summer stand permanently. But if from any cause their bodies become distended, and they become restless, and begin to crawl out of the hive, they should by all means be given an open-air flight if a warm day can be had.

I remember quite distinctly that, during the winter of 1872, many bees died in Indiana of what was called dysentery or bee cholera. They died in the cellar and on the summer stands alike. The cold periods were protracted, so that, when bees came out of their hives, it was only to perish, as but few of them were able to enter the hives again. I carried several into a warm room and let them fly out against a window which they plastered almost all over with their excrement. I cleansed out the hive in each case, and dried as best I could the combs, and then brushed the bees into a basin and turned them back into the hive, and at night returned them to the cellar. All that I treated in the above manner went through the winter much reduced in numbers, but recuperated, while nearly all not so treated died.

In Central Kansas, where I now live, our cellars are for the most part very dry and dusty all the year through, so that, if bees are put into them in healthy condition and both temperature and ventilation are properly regulated, they will, as a rule, pass through winter in fair condition without being carried out to the summer stand for an open-air flight. But if it is found necessary to give them such flight, the day must be quite mild or a great loss of bees will result from it.

Lyons, Kan.

[See editorial comments on this general subject of winter flights in the editorial department.—ED.]

THE FLOW OF NECTAR.

How it is Dependent on Atmospheric Conditions; the Effect of Thunder-storms; some Interesting Observations.

BY J. E. CRANE.

The effect of the weather upon the flow of nectar in flowers is not, perhaps, a very practical question, and yet it is one in which I have been greatly interested for the past 35 or 40 years. It is not probable that Franklin had any thought of telegraphs or telephones, electric lights or trolly cars, as he studied the phenomena of electricity. It is not at all certain that, if we knew just the effects of the weather upon flowers, we could in any way alter those effects; yet it may be well for us to understand them. Beyond the suggestion that the season was either too wet or dry, or too cold, we seem to know little upon this subject.

If we place a populous colony, with an abundance of room, upon a pair of scales we can not help being interested during the honey season at the almost constantly varying yield of honey from day to day. Sometimes we may be able to tell with some degree of certainty the cause, but more frequently we may not. I remember very distinctly my experience some twenty-five or thirty years ago when I kept a careful record of the weather, using a wet and dry bulb thermometer. Two days stand out very clear in my memory. It was during white-clover bloom. There had been for some days a very good flow of nectar—6, 8, 9, 12, and one day it ran up to 15 pounds gain, the greatest of the season. It was one of those soft balmy days, the temperature just right for comfort, the wind south, the sky a little hazy, the outlines of the distant mountains indistinct. The conditions seemed nearly perfect for the flow of honey or nectar. During the night that followed there was a change. The next day the wind was north; the sky clear and blue; the air more bracing than the previous day, although not cold; the outlines of the mountains east and west were sharp and clear; the bees could fly from morning till night. Surely the bees ought to gather a large amount on such a beautiful day. Imagine my surprise to find that night they had gathered only three pounds. What made the difference? There were just as many flowers, the same bees. The instincts of the bees had not changed, nor was there anything to prevent the bees gathering nectar but the lack of it, so far as I could see.

A very wet season is generally considered very unfavorable for a good yield of honey; and yet the two wettest seasons I have known in the past fifty years both gave most excellent crops of honey, much above the average.

I have found it a rule that honey is more plentiful when the wind is south than when in the north. I live between two mountain ranges, and we have very little west wind. In a season when there is a large flow of nectar we may get better results with north wind than with the south wind in seasons of scarcity. I was told, when I began keeping bees, that showery weather is favorable to honey-gathering; and if we watch the bees come in just before a shower we may come to that conclusion ourselves. But if we stop to think we may remember that as many bees as would ordinarily come in in one or two hours rush to their hives in perhaps ten minutes or less. One hive on scales on such a day will show no increase over others; and if the shower is a thunder-shower, the following day is quite sure to show a decrease in the amount gathered.

Not only do thunder-storms appear to be deleterious to the flow of nectar, but often almost fatal to securing a good crop of honey. My attention was called to this some years ago during clover bloom. The season was rather late; but early in July the fields were white with clover, and bees were storing honey rapidly. One day I went to one of my outyards when I found the bees idle, nothing doing. Indeed, I have sometimes thought that, had a fire passed over the range of this yard of bees, the flow of nectar could hardly have been more quickly or completely cut off. I found, on looking it up, that a severe thunder-storm had passed over the range from which this yard of bees gathered their stores, two or three days previous to my visit. I noticed another thing quite as surprising—that my other yards of bees gathered little honey after this time, although they seemed to work more than the one in the immediate track of the storm. Was it possible that a heavy thunder-shower would not only affect the flow of nectar in its own track, but also some distance from it? It certainly looked that way. My attention was called to this subject a few years later when I noticed a great decrease on one day below the previous day, without any apparent reason for it; but on looking over a daily paper it reported an unusually severe electric storm as passing some thirty miles to the north of where I live, on the first of the days mentioned.

The flow of honey the past season was one of unusual interest from a scientific standpoint. There was a very good flow from clover for about three weeks, when it dried off and basswood bloom came in. As often happens, the basswood gave little nectar at first; but after a few days it began to yield fairly well, at first slowly, soon increasing to nine pounds in one day from hive on scales. "Now," I said to myself, "we shall at last get a fine crop of basswood honey, which we have not secured for several years;" but, alas for human expectations! The day following a yield of nine pounds, there was a gain of only five pounds, and the next of only two; and then a loss, the colony on scales not even gathering enough to live on, although very strong in numbers, and basswood at its best so far as amount of bloom goes, and the weather such that bees could fly most of the time.

What could be the cause of such a complete failure from basswood, for the yield after this was very light, although the bloom lasted for many days?

After former experiences I accounted for it in this way: On the day of the largest yield there was a severe electric storm a few miles to the northwest from here, doing much damage. This appears to have cut down the yield here nearly a half the next day, when, near night, we had a storm where my yard was located, when on the following day there was another reduction. In fact, this same showery weather continued for several days, although bees could fly most of the time the flowers refused to yield their nectar.

Thunder-storms do not appear at all times to be equally injurious, and at times the flowers will in two or three days resume their normal condition after a storm, while at other times they seem to lose their power or disposition to furnish nectar for the rest of the season.

I should not like to say that thunder-storms are the cause of the decreased flow. It may be that the conditions favorable to the development of storms may be unfavorable to the production of honey, although the decrease of honey occurs after the storm rather than the same day.

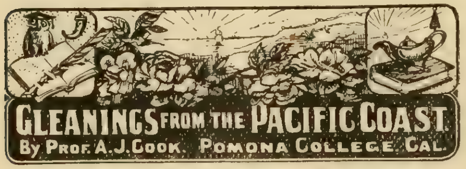
Where a thunder-storm occurs with a heavy rainfall, followed by a north wind and a lower temperature, there is almost sure to be a decrease in the honey-flow.

Now, while severe thunder-storms appear to be very detrimental to the flow of nectar, a rain unaccompanied by electric display does not appear to injure the flow of honey unless it comes off cold after it. The wettest season I remember, and a particularly good one for honey, was in 1872; but the rain came almost wholly, not in thunder-storms, but the sky would be covered by a light haze which would be deeper and thicker when the rain would come down, after which it would break away without thunder or lightning, only to be repeated a day or two later. In fact, such weather at times seems to increase the honey-flow. In 1880 we had in this section a peculiar season. We had little or no clover, owing to the previous open winter. Early in May I went to a neighboring county trying to find a place where I could move my bees so they might secure enough for winter. On my return I found basswood was going to bloom full, and I decided to leave them where they were. Presently basswood came into bloom, and the bees flew freely from their hives—yes, and buzzed about the flowers, but seemed to get little more than enough to keep them from starving, until the very last week of the bloom, when there came a rainy day, and the basswood turned over a new leaf, as we say, and the flowers gave an abundance of nectar, so the bees worked in the rain, bringing in what they had so long been looking for. The next four days were pleasant, and bees were able to fill their hives and store considerable surplus. Here the rain seemed to be a benefit, but it was quite free from any electrical disturbance, and was followed by warm weather.

I have given these notes that others may take up the subject where I leave it, that in time we may be able to understand the subject more perfectly than at present.

Middlebury, Vt., Dec. 14.

[We should be pleased to hear from others of our correspondents, for by a comparison of notes we may learn something.—Ed.]



GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

There was an interesting discussion in the United States Senate a few days ago. The subject under consideration was free-seed distribution by the government. Senator Lodge, of Massachusetts, referred to it as a "moss-grown humbug," while Senator Platt, of Connecticut, stated a truth when he said that the seeds are often very ordinary, and such as might be picked up at any market. He further said, in effect, that the spending of $300,000 annually in distributing these seeds was an arrant waste. He also repeated Senator Lodge's epithet of "humbug." I don't believe there ever was a more senseless project in any government than this matter which has been continued for so many years in our own. It seems to me we may almost call it a disgrace to the Republican party; and as I have always belonged to that party I feel more freedom in expressing my feeling in the matter. I suggest that we all write to our respective Congressmen, urging upon them the discontinuance of this colossal burlesque. I have observed the matter for years, and I know that Senator Platt said truly that the seeds are often only ordinary. When we add to this the further fact that many a package is simply put aside to remain unused till consigned to the junk pile, we certainly have a prodigious count against this whole business of seed distribution. Let us all send our petition of *don't!*

◆

Southern California is typical of arid America. By arid regions we mean places that receive annually less than 20 inches of water. Our own Southern California averages considerably less than this. For a series of years the average at Claremont has been about 15 inches. Occasionally the season's downfall is below half this average. This matter is of great importance to beekeepers, as, with much less than the average, we are sure to get very little if any honey. We may get a crop with some less providing the rain comes late in the season and in such fashion as to sink wholly or mostly into the ground. There is one advantage which arid regions have, which must never be lost sight of. The few and sparse rainfalls do very little leeching of the soil, and consequently the soil fertility is something surprising to those who have always lived in humid regions. In Ohio and Michigan the subsoil is very barren, and, when turned to the surface, will grow little vegetation for a series of years. Here, and in most of our arid regions, we find it quite otherwise. Our soil is rich away down. That able scientist, Dr. E. W. Hilgard, puts this very happily in the remark that the rancher of California is in possession of several farms, each on top of the other. From this fact our plants make no mistake in sending their roots away down deep into the soil. Our plants and trees often send their roots down five, ten, and even twenty feet, and no doubt find abundant fertility in all their quest downward.

◆

There is another advantage gained in this deep rooting of our California vegetation. During our long dry seasons the surface soil becomes very dry and parched. In this the rootlets could not slake their thirst, and so could get no food. In pushing down, however, into the depths of the subsoil they find the needed moisture, are enabled to drink up the needed soil elements, and so live on. This is why we find, in nearly all cases, that our California plants, especially those native to our clime, or those which have become acclimated, have a strong deep tap-root. Our sages and buckwheat, which make our region famous for its honey product, are very marked in this respect. By this deep rooting they find moisture and fertility sufficient to keep them alive, even in the years of greatest drouth, while with a more generous rainfall they are enabled to store up energy sufficient to hand over to the bee-keeper often a phenomenal yield of most delicious honey.

❧

The vegetation in arid regions is found to possess many peculiarities. First, we often find a curtailing of leaf material. This is most emphasized in such plants as the cactus, which has no leaves at all. Its green succulent stem surface is a substitute for leaves, and thus the evaporating surface is curtailed to the utmost. Other plants, native to our clime, though possessed of leaves almost always show them in compound form. These long narrow leaves also give less surface, and thus limit transpiration or the giving-off of moisture. Others of our plants have leaves that are thick and leathery, and thus transpiration is further reduced. All who have observed our Southern California vegetation have no doubt noticed the shining aspect of much of our foliage, the leaves looking as if they had been varnished. This is another attempt on the part of our vegetation to lessen the escape of moisture and hold on to that which is the one great need of every arid region.

❧

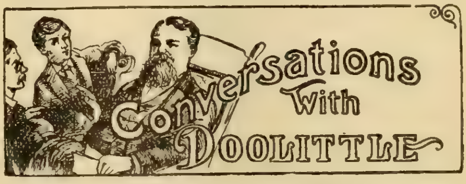
There is another feature of our vegetable growth in these arid regions which surprised me the first spring after I came to Southern California. I refer to the fact of the different periods of the germinations of the seeds. In the East we expect all the seeds of each species of plant to germinate in their season. Thus the adder-tongues, the spring beauties, and the hepaticas all spring up with the first warm breath of the season. In California it is far otherwise. With the early rain will come scores of gilea, shooting-stars, and baby blue-eyes, to be followed in succession over and over as the rain comes again and again. We can see why this is so. If an early rain comes, followed by a long period of drouth, the early plants will spring up and die. With a much later rain others will germinate, find sufficient moisture to live and grow, and thus seed will be produced, and the real object of the plant will be accomplished. Thus the plant is continued as a result of varied dates in germination.

❧

Closely correlated with the above is another feature of our flora that is more significant to bee-keepers. I refer to the long period of bloom of most of our plants. From what I have just stated we see that this must be true of our annuals. It is as strikingly evident in our perennials, like the white and ball or black sages. While the black sage usually commences to bloom in June I have known it to anticipate this period by at least six weeks or two months. Then, again, most of our plants produce long racemes or panicles. They commence to bloom usually below, and continue the blossoms clear to the tip of the plant. This is nowhere more strikingly exhibited than in the common white sage. Thus we may have bloom for several weeks, and we can readily understand the phenomenal harvest which the bee-man is likely to secure. In case of the wild buckwheat, the first blossoms will open in early June, while the date of the last knows no limit except as frost calls a halt.

❧

Everywhere in our country the sparrow (or finch) is a favorite with bird-lovers. Who in the East has not early fallen in love with the modest little chippy and the equally attractive song sparrow? Who has not said "blessed," as he has listened to the song of the latter or seen it busily employed ridding his lindens of the young scale insects? If we except the European (or house) sparrow of the East (and he is a late foreigner from the old world), I know of none of this sparrow tribe that are not welcome guests in every field, garden, or orchard. Not so in California. The house linnet, or little red-breasted linnet, is our most common bird. Its welcome matin greets my ears all the summer through, even long before sun is up. Yet it is a little rascal. It devours the luscious loquats of April, not waiting for them to ripen. Even before this it has stripped the apricots wholly of their fruit-buds. Later the apples, pears, and quinces are gauged by this same little varmint. No sooner has he broken the peel than the bees hasten to stay the waste. Thus the bees get the curses where they by good rights belong to this rascally bird. The linnet is our one bird-pest that merits death at the hand of the orchardist in Southern California.



CELLAR WINTERING.

"Say, Doolittle, what do you think about giving bees, which are being wintered in the cellar, a flight or two during the winter?"

"Well, Mr. Clark, may I ask you a question?"

"Certainly. I should be as willing to have questions asked me as I am to ask them of you."

"That being the case, allow me to ask you how high you have seen the mercury between the 12th of November, 1904, and this, the 3d day of March, 1905?"

"Well, 42 degrees above zero is the highest I have seen it. What has been your observation on this point?"

"The highest I have noticed it is 43, and I have been watching the matter quite closely. Does not the time between the dates spoken of include *all* of the winter months?"

"Yes. But what are you trying to get at?"

"Just this: It is useless to talk about winter flights for cellar-wintered bees, no matter how bad they are spotting their hives or wanting to fly, if there are no days during winter when it is warm enough for them to do so."

"That is something I had not thought of. How warm does it need to be for bees to fly out?"

"About 45 in the shade, with the sun shining brightly, and practically no wind, when the snow is on the ground; and as we had no such days during the winters of 1903 and 1904, this talk about giving 'cellared' bees a flight in winter does not avail with those under such environments as we have here in Central New York during the *hard* winters for *bees.*"

"That is so; and it is something I did not think about while reading in Gleanings the advice regarding such flights. But what can we do?"

"Use such cellars as will keep the bees from wanting a flight; for bees which become so uneasy that they spot the hives are far from wintering well, and I consider it far better to have a cellar which will winter the bees well, *without a desire for a flight,* than to have a cellar in which they become so uneasy that we are obliged to open doors and windows at times, carry the bees out for winter flights, and worry over them more or less during the winter besides."

"But can we have such a cellar?"

"Certainly, if we can maintain the right temperature while the bees are in the cellar."

"I think I saw a picture of your bee-cellar in the A B C book, did I not?"

"Yes, there is such a picture and a description of it there."

"Where is that cellar?"

"Over there to the right. Don't you see it?"

"What! That peak I see sticking out from under that bank of snow?"

"Yes. That is where the cellar is, but it has been nearly bare of snow till lately, or until since our February snows."

"How often do you go into it?"

"I have been in only once since the bees were settled down, after putting them in—I think on the 10th of January."

"Only once since the latter part of November?"

"Yes, that is right."

"I do not suppose you would want to go in now, this sunshiny (nearly zero) morning, on account of disturbing them?"

"If you want to help shovel the snow away from the door, we will go in."

"I shall be only too glad to do that."

"You will find one shovel in the barn there, and I will take this one. There, I think that will do, as this first door swings in, made that way on purpose so little shoveling need be done when I wish to go in."

"Well, that is something I had not thought of. It does save a lot of shoveling."

"This next door swings out by the first one, so as to allow the next to swing over it; and this next one as well."

"What! four doors?"

"Yes, they enclose these three dead-air spaces of about three feet each, as you see. Now before we light this candle (a sperm candle is better than a lamp for a bee-cellar), we will stand still here in the dark for a few minutes till our eyes get over the effects of the bright sun on the snow; otherwise we can not see much, as an artificial light looks dark in comparison."

"Listen! Is that little murmuring sound I hear, like some far-off wind, or old ocean, miles away, the bees?"

"Yes. Some claim when bees are wintering well that they are absolutely noiseless; but I do not find it that way. All cellars, into which I ever entered, where there were from twenty colonies upward, always gave this same sound you now hear."

"I should not have noticed it had you not waited about striking a light; but when we are perfectly still, then it is noticeable. Ah! but that light now shows the hives piled up on top of each other. But where does any ventilation come from?"

"Through the surrounding masonwork, and through the three feet of earth which is over this flagstone roof, together with, probably, a little through the three dead-air spaces between the doors at the entrance."

"What! don't you provide any special ventilation? I thought it was claimed such was one of the great necessities if bees were to be wintered in the cellar. In fact, I supposed bees could not live without a lot of fresh air from the outside."

"I know there are those claiming that such is necessary. But let let us look at the bees."

"What kind of bottom-board have you there?"

"That is the Dr. Miller bottom-board; and it is one of the nicest things I know of, along the line of bottom-boards. It is now deep side up. Look in that two-inch space between the board and the hive."

"Why, Doolittle! there is half a swarm hanging down there; and where they touch the bottom-board they are six inches across; and, just see! they hardly stir. There are not a dozen dead bees in there, and not a pint on the whole floor of the cellar. How many colonies are there in here?"

"There are 57. The cellar was built for 100. It is barely possible, if the whole 100 were in, that things might not be as nice as now, but I think about the same."

"And you have not been in here since the 10th of January?"

"That is correct."

"How many dead bees did you sweep up then?"

"Not any. I went in then only to see that no mice had come in with the hives to worry the bees; and the bees would be just as well off had no one come in till the time to take them out in the spring. Do you think these bees need a winter flight?"

"Need a winter flight? Why, if there were not a little stirring there, on account of my breath, and the candle within six inches of them, I should say they were dead. I can only see that they are in as perfect condition as they were last fall, from all I know of bees. And is this all there is of cellar wintering of bees with such an underground cellar as this?"

"Yes, only that there are few winters when there are as few dead bees as there are now. Generally when I have been in here as long as we have been in here now there will, once in a while, a bee fly out to the light; and when that is so, there will be a quart or so of dead bees to sweep up, if I think best to come in and do so, once a month. But I have about concluded that the bees are just as well off if left entirely to themselves (from the time I am satisfied that I have brought in no mice) till they are taken out for good in the spring, on the appearing of pollen for them to gather."

"Not a single bee has 'took wing' since we have been in here—not one come to the light; scarcely any dead, either under the hives or on the bottom of the cellar, and no ventilation provided for. Well, this beats me. But what is the temperature? Just 43 above zero! Doesn't it vary from that on extremely cold or very warm spells?"

"From 43 to 45 is all the difference I have ever seen—45 right after they are put in, then gradually lowering to 43, and then a gradual rising to 45 again, a week or so before setting out."

"And any one having a little rolling land or hills can have such a cellar as that. I'll have one for another winter."

"I do not find it necessary to have just such a cellar as this, for my experience with my out-apiary tells me that bees will winter nearly if not quite as well in an ordinary farmhouse cellar as in here; at least, my 30 colonies at the out-apiary winter nearly as well in the farmer's cellar as do these."

"Are they wintering as well there this winter as are these?"

"I can not say for certain. I have not been there since they were put in in the fall. But I believe they are."

"Don't you go to see them?"

"No. In all the fifteen years I have had them there, I have been there only twice during winter, and they have invariably come out well."

"But the farmer attends to them, does he not?"

"No; he pays no attention to them. He just uses his cellar the same as he always did before my bees were there—goes in after his vegetables, opens up his 'bulkhead' doors to load up his stuff to carry to market, etc. I place no restrictions on him."

"How are they fixed there?"

"The same as here, except that there is a ⅜-inch-mesh wire-cloth screen put up before all entrances, to keep the vermin out, and the fronts of the hives are turned toward the wall so as to exclude the light partially when he has doors and windows open for any reason. It is to his interest to protect his vegetables from freezing, etc., and in following his interests he takes care of mine and the bees—or, at least, as I have said, the bees come out in the spring all right each year."

"And you don't worry about them in the least?"

"No. I used to, to some extent; but now I am confident they will come out all right, and so I turn my attention to other matters during the winter, scarcely knowing that I have any bees except in a nominal way. And, let me say, it is a relief to me beside what it was when I was thinking of setting them out for winter flights, opening and closing ventilators, doors, windows, etc.; and the beauty of the whole thing is, the bees come out far better, on an average, than they did when I was 'up to date' in all of these matters."

"Well, if that farmer's cellar winters your bees as well as these are wintering I am going to try mine, for I have a good cellar under my house. But just one more question before I go. What do you think about the advocating of the closing of entrances to keep out the cold where bees are wintered outdoors, as given in February 15th GLEANINGS?"

"I wrote up and advocated the very same thing in the '70's, and was called a 'fusser' and a 'tinkerer,' and told that it might do with a few hives; but with 50, 100, or 300, such things were not practical. And, after following it with a part of my colonies for years, and leaving others to take care of themselves, I was driven to the conclusion that those not so treated came out equally well for the honey harvest."

[See editorials.]

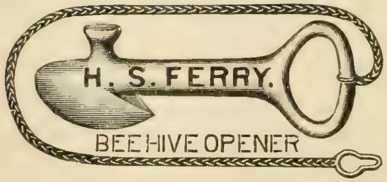
Heads of Grain
from different fields

USEFUL TOOLS.

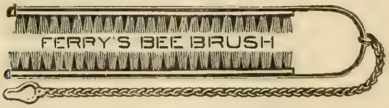
The Ferry hive-opener and Ferry bee-brush are the result of experience in the apiary, using screwdriver, old file, or corn-broom brush, wings, or almost any thing to open the hive with, or brush the bees off the combs, as well as, when wanted, finding they are at the last hive worked upon.

Both Ferry hive-opener and Ferry bee-brush have a small chain attached, about one foot long, with a tin eyelet (or buttonhole) that you put on to a button on your right side, at a height that, when your hand is hanging down, it is in position to take either the hive-opener or bee-brush. You never lose them if in this position.

The advantage of the hive-opener is, it is always with you; and when you are at work opening hives, one finger is slipped through the large opening and kept in this position while at work. It has a sharp edge to pry open the hives; has a little nail-puller, should you loosen the bottom-bar, and a little hammer to drive the nail in, always ready, and in your hand. Should you desire not to have it in your hand, it is suspended by a chain, ready for use at any time.



The bee-brush is equally handy, being suspended by a chain. It is a double brush. One can brush the bees from both sides of the frames at the same time. The frames, being free from bees, are at once removed and placed out of reach of the bees before they know it. If you want to brush only one side of the frame of bees, spread the brush a little, so that it will not touch both sides. But I seldom require this, as I want both sides free from bees. H. S. FERRY.



Mt. Vernon, N. Y., Feb. 15.

[Mr. Ferry has sent us a sample of both the tools here shown. I have had only a very limited opportunity to test the hive-tool in opening up some colonies outdoors to determine their condition; but so far I am inclined to think favorably of it. The scheme of attaching the tool to the person by means of a chain having an eyelet in one end to hook over the vest or pants button is excellent. The eyelet can be very quickly unhooked, and as quickly replaced. The ring in the end of the tool for the insertion of a finger makes it possible for one to have the tool attached to his hand, and yet at the same time use the whole hand in doing hive work. This ring may also be used in removing super-springs.

The only objection to the implement is that it can not be used as a screwdriver, and really I do not know that this is essential. The little hammer-head and tack-claw I consider much more serviceable.

The tool proper is just four inches long, and it may be carried in the pocket like an ordinary jack-knife, hence always with the apiarist. A hive-tool, to be ever ready, ought to be of such size that it will not be bulky in the pocket. Indeed, I expect this coming summer to carry such a tool with me, along with a thin bee-veil, either of which I can put into service when I happen to be in the bee-yard unexpectedly. If I could have a sort of collapsible bee-smoker that I could put in my pocket—cigars might do, but I don't smoke—I should consider myself completely equipped.

Actual experience with this hive-tool this summer may show some defects in construction; but I am satisfied of this: That one form of hive-opener and frame-pry will not suit everybody. Indeed, I submitted two of these models to friends of mine, and they do not think much of it, as they consider it the wrong shape, and not as good as some others that have been presented. It is the old, old question again that the shoemaker has to meet. Some of his customers will have buttoned shoes and others laced ones, and still others will have only boots.

I have had no opportunity to try the bee-brush; but I did test, some two years ago, one embodying somewhat the same principle —namely, a double brush, devised by Mr. John Hammond, of Buena Vista, Ohio. A report and illustration of this are given on page 476, June 1, 1901. But this brush would not, I imagine, be nearly as serviceable nor handy as the Ferry implement with its *adjustable* jaws, so to speak. The Hammond brush has bristles mounted on two fixed parallel standards, while the Ferry has those same standards adjustable to fit inequalities in the comb, thick and thin ones; and, what is of considerable importance, it allows the operator to close the jaws or bristle edges over the comb; then when the bristles are in contact with the surface, one can give one quick sweep downward. A relaxation of the tension allows the jaws to spread again, to come in contact at the top of the comb, when another sweep on both sides can be given, disengaging every bee. I believe the *principle* is all right; but, like every new thing, it may require some modification of form.—ED.]

DR. MILLER'S ADVICE TO A YOUNG MAN ABOUT TO START IN BEE-KEEPING.

Howard Berkley, Berkley, Pa., is a farmer boy 15 years old, with two colonies of bees, Root's A B C and Langstroth, and a location having basswood, clover, fruit-bloom, fall flowers, etc., with few bees in the surrounding country. He wants me to say in GLEANINGS what hive I would advise, and whether it is advisable for him to go extensively into bees.

If you think of producing extracted honey, don't have any thing less than a ten-frame Langstroth or Dovetailed hive; the same also for comb honey, unless you expect to give your bees the closest attention, in which case the eight-frame Dovetailed may do as well or better. You have all the pasture needed to make a fine success, the chief question being whether Howard Berkley is the right chap to make a successful bee-keeper. Go to work to find that out. Give careful study to the two very excellent books you have. Don't be in a hurry to increase rapidly in numbers. See how much honey you can get, rather than how fast you can increase, being satisfied with an increase of 50, or at the most 100 per cent annually. In that way you can feel your way along and find out better than any one else can tell you whether it will be well to give your chief attention to bees.

Stick to your father's farm for a long while yet, and get a good education. The better your education the bigger the world in and around you, and the more enjoyment you can have in taking care of bees. Above all, be a good, honest, Christian man. The market is overstocked with smart men; but square men such as I have mentioned are at a premium. Be one of the premium sort. Best wishes for your success.

Marengo, Ill. C. C. Miller.

[The last paragraph, if nothing more, is good enough to paste in the hat. Yes, sir, there is always a premium on square men. —Ed.]

PROPORTION OF WATER AND LYE FOR CLEANING PROPOLIS ; MISS WILSON EXPLAINS.

Mr. Green wishes I had been a little more explicit as to the amount of water used to those three cans of lye, page 13. I should guess the kettle used would hold about half a barrel of water. I would go this minute and measure ; but truth compels me to say that we do not own such a kettle (I wish we did), and the one used was borrowed for the occasion from our wash-woman.

I did not measure the water put into the kettle. I just filled it full enough so I thought it would not slop over when the utensils to be cleaned were put in, leaving room to move them about freely, adding more water as it boiled away.

I presume I used more lye than was actually necessary at the start ; but as it is not very expensive, and, so far as I could see, never injured in the least the articles to be cleaned, I put in that amount to start with, and it was all needed before I was through. It takes less time, and does better work, to have the solution very strong at the first.

Marengo, Ill. Emma M. Wilson.

PROGNOSTICATING THE CLOVER-FLOW.

Mr. Root:—As you ask for reports, page 1156, for rule or rules to know the previous year whether we are going to get a crop or not, I know of no sure rule. A good growth of clover in the fall, and plenty of snow or a mild winter, has always been the surest rule with me. The year 1901 was very dry and hot. June 1 the honey-flow began, and was heavy until about the 15th or 20th, when the flow stopped by clover drying up.

The year 1902 was a wet one, with no clover honey-flow, and the winter following was mild, with three or four inches of snow, and clover was green under the snow all winter.

The year 1903 was also wet, with the greatest growth of clover known, which gave a crop of 150 lbs. per colony, spring count, with a great deal of swarming. The growth of clover continued thick until fall. The winter of 1903 was very cold, with no snow. The next spring, on hills where the north and west winds could strike, the clover was all dead where it had been a perfect mat the fall before; but on the sides and bottom of the hills, and also where the grass was long to protect it, there was a fair to good growth.

Honey crop of 1904 of white clover was a complete failure. Now, in 1903 there was plenty of rain all through the season.

Heartsease in this locality is a very sure yielder. I have always secured a crop each year ranging from 20 to 100 lbs. per colony. This year I got 20 lbs. per colony, but there was very little honey in the brood-chamber at the beginning of the flow. The flow begins about Aug. 15, and lasts till about Sept. 15.

Dixon, Ia., Dec. 27. E. A. Doney.

[By your rule, then (and it is the one generally accepted), if we don't have too dry a summer we ought to get a good flow of honey from clover this summer. Last fall there was an unusual amount of young clover everywhere. While the winter has been cold there has been no lack of snow.—Ed.]

THE HOFFMAN FRAME UNIVERSALLY LIKED IN JAMAICA.

I wrote all the prominent bee-men, asking them to point out any defects in the Hoffman frame, if there were any. Replies: "The Hoffman frame is an ideal one." "We will have no other." "The only fault in the Hoffman frame is, that every beekeeper does not put them up alike."

F. A. Hooper.

Kingston, Jamaica, Dec. 5.

[Mr. Hooper has himself something like 20,000 Hoffman frames in use. He's in close touch with nearly all the extensive bee-keepers of the island. so that his statement regarding the merits of this frame in question can be taken with some weight.—Ed.]

INCREASE NOT WANTED; HOW TO PREVENT.

I have as many colonies of bees as I want. I should like to know how to manage those bees so as to get good service from them in storing honey without any increase. If this can not be done, what method will come nearest to it ? A. T. Zimmerman.

Washta, Ia., Feb. 7.

[Increase can be held in check by hiving the swarms back on the old stand in a hive containing empty combs or foundation. The parent colony with its combs should be placed alongside of the hive with the swarm, but with the entrance at right angles to it. When the swarming season is nearly over, or all the brood hatched out, shake the bees of the parent colony in front of the swarm. Another good way is to use the "shook-swarm" plan. When the brood is hatched out in the parent colony, shake again; then extract the combs containing the honey, or use them as food supply for winter.—ED.]

TO MAKE A GIVEN BEE PASTURAGE A LEGAL PROPERTY RIGHT.

As to crowding the territory with bees, how would it do to have a law to sell out territories about three miles square to the highest bidder, with provisions to let the proceeds of such sale go the owners of the territory sold, or to the number of acres of some kinds of crops adapted to bee-pasture?

Cuba, Ill., Feb. 8. M. W. MURPHEY.

[This looks feasible; but when we come to work out the details we run into difficulties. The land-owners would sell to the bee-keeper paying the highest price. But suppose Jones would want more than Brown for the right of the bees to trespass on his land. The law so far recognizes bees as *feræ naturæ*—that is, wild by nature, or, to put it in another way, animals that go where they please in spite of man. As long as these animals do not interfere with the farmers' crops, no complaint is now raised; but just the moment the land-owners find out that the nectar in their clover-blossoms or other honey-producing plants has *legal* intrinsic value, then a lot of ignorant farmers might ask all kinds of prices or combine and prohibit the bees altogether from the territory by putting up an exorbitant price. The law might specify that no more than a certain amount per acre should be paid; but I am afraid, taking all things into consideration, if we were to try to draw our legislators into the intricacies of the problem they would become discouraged and kill the bill in committee. Then the question of constitutionality would also come to the fore.—ED.]

BEE DISEASE RESEMBLING DYSENTRY; PECULIAR INCIDENT GIVES WARNING OF THE ATTACK.

I have now about thirty colonies of bees and I want to ask you some questions about a disease that has been raging among them by which I have lost about ten hives in less than two months. Some of these were in modern hives, and others in old-fashioned box hives, but every one of each kind had plenty of good honey. The bees are mixed—some blacks, some hybrids, some Italian, and the disease works alike on them all. I have examined the bees as closely as possible, and they seem to have something like dysentery. They seem to be swollen, and look as if they had been dipped in grease. They can not fly much after the disease seizes them, and they linger along a week, more or less, before they die. I have seen but two queens in the ten hives. One was dead in the cell, and the other was alive and all right, or seemed to be, while there was not another single bee in the hive that could fly. I didn't see any young brood at all in any of the hives. A thin substance, something like sweetened water, drops down on the floor of the hive about a week or two before they have the disease. Can you tell me what the trouble is and if there is any remedy?

J. W. HARRIS.

Commerce, Ga., Feb. 11.

[It is to be presumed you are familiar with bee paralysis; for in some respects the disease described resembles that particular trouble. If it is not bee paralysis one might almost surmise the bees had been suffering from suffocation. Without some specimens of the bees it would be impossible to diagnose the disease more exactly.—ED.]

A PLAN FOR REARING QUEENS AND RUNNING FOR INCREASE AT THE SAME TIME.

I submit a plan for queen-rearing, which, if of sufficient interest, you can publish. I studied out this plan; and as I am running my apiary for extracted honey exclusively, I hope it is entirely feasible. I want to increase my apiary, as this has been a bad winter for bees, and I have lost so far about 20 per cent—no weather for bees to fly here since Jan. 1. It is now time, here in this latitude, for bees to begin gathering pollen and begin brood-rearing. This is the plan:

In April, start cells in colonies by Alley plan of mutilating strips of newly made comb. When cells are capped, cut out, place in protectors, and enter in a strong queenless colony for hatching. When virgins are hatched, place in introducing-cages (to eat out candy and be released), and introduce in *upper* stories of strong colonies, the queen *below* being prevented from getting to the upper story by solid zinc excluders. A small exit is to be left in the upper story at the rear of the hive so the virgin queen may fly out for mating. In about ten days from introducing, when the young queen begins to lay remove a frame or two with adhering bees; confine for 24 hours, and let them be made into a nucleus. CHIP HENDERSON.

Murfreesboro, Tenn., Feb. 11, 1905.

[I see no reason why your plan won't work, except in one particular, and that is, getting the queens fertilized from upper stories. Unless honey were coming in, many of the virgins would be found missing instead of fertilized. A surer and better way would be to form the nuclei, and at the same time give one of the caged virgins. Confine the bees in the nucleus for 24 hours (better 48), and the virgin, when released, can take her flight. There would be no particular advantage in forming the nuclei after the queens were laying, even if it were feasible to have them fertilized in upper stories.—ED.

BEE-STINGS NOT A PERMANENT CURE FOR RHEUMATISM.

Several years ago I wrote you that I thought bee-stings had cured me, for I was free from it for several years. But I had a bad fall from a ladder, and the mash-up I got brought it all back. Then I seemed to get rid of it again gradually until I moved here, where I took malarial fever, and then the old rheumatism was as bad as ever. I think this time it was the moving to a new location which is on low ground.

Porsmouth, O., Jan. 30. J. HAMMOND.

[Still your experience does not show that the stings did not help to alleviate. Your trouble came back because of other conditions.—ED.]

THE DE LUXE TIN BOXES FOR COMB HONEY.

I can hardly conceive of these ever coming much into use in either the United States or Canada—rather too much work, I should judge, in a country where help is as costly as here. It has occurred to me, however, they could be made desirable for holding sections themselves. Make them to hold not more than 11 oz., and, better yet, half a dozen. When decorated as those you have illustrated, there would be no need of glass. Those who desire it could have their name and address on them, or they could be nicely labeled, as are many boxes found on the market. The no-drip feature could be easily made by a fold in the tin. I should judge that they could be made so as not to cost more than if as much as the kind in use at present. One to hold six dozen sections would no doubt help to sell them in this quantity instead of single sections. It would be interesting to know what they could be made for. Where the wood and glass shipping-cases are repacked in a larger case, these tin ones would have an advantage of a saving in freight, and would take up less room. It would not be necessary to make them honey-tight. How is this done with those described? Would not the candying feature be objectionable when used as described, especially when extracted honey is put in to make up the light weights? and would that liquid honey find its way up into the empty cells? It seems to me that it would not only be slow but mussy. G. A. DEADMAN.

Brussels, Ont., Canada.

FORMALDEHYDE CURE FOR BLACK OR PICKLED BROOD; WINTERING BEES UNDER WATER.

I see in GLEANINGS that some bee-keepers claim formaldehyde fails to cure black, foul, or pickled brood. I think they do not use it strong enough or do not use enough. Three years ago I lost 37 colonies. I had never seen any foul or black brood, but the offensive odor gave it away. On examining I found from three to five combs in every hive that had from ten to twenty-five cells on both sides of the combs, generally opposite or nearly so, often more on one side than the other, the capping dark and sunken, the bee shrunken and pickled, seldom ropy, but smelling like a glue-pot or a burnt bacon rind. I took every frame, scraped off all the propolis, then took a No. 8 finishing nail, uncapped each cell and took the bee out; then I took out one end of an old hive and hung it on hinges, making a door; lit my oil-lamp with a four-inch wick, and put it inside the empty hive; then took a round tobacco-can with a flat bottom, poured in half a pound of liquid formaldehyde, and placed it over the lamp; then put on another empty hive; then I tiered up seven hives, stopping each entrance, and covered the top with a thick quilt. Occasionally I would open the door where the lamp was, and see how it was progressing. Where all was evaporated I removed the lamp, then let them stand six hours, then set them out to air. Since I have put swarms in those hives I have seen no more black or pickled brood. But it was a very offensive-smelling job. You can hardly wash the glue smell from your hands. My hives were full of honey in the fall. In the spring the bees were dead, and not a drop of honey. My opinion is, a colony with foul brood will use three times the amount of honey that a healthy one will.

Again, we see it advocated that bees must have a dry place to winter in. Last year I got caught out. Winter set in early, and, being a carpenter, I had a large house to finish which took me till the 15th of January. My bees were 3½ miles from the cellar, and I was afraid to move them. Part of them were on low ground. There came a thaw and then a freeze, so the water could not settle away, freezing two or three inches of ice in and around the hives. I tried to get them up; but it was three weeks before I got them up; but I gave them air from the top. Every one of the submerged colonies came out all right in the spring, and those that were on high ground froze to death. If any one wants to try the experiment he can. This year my bees are in the cellar, and as quiet as kittens. CALVIN CRAIN.

Sparta, Mich., Jan. 24.

[You do not say whether those hives that you tiered up contained infected combs or not. If not the disinfection of the hives alone would not prove any thing, as not one in a hundred would transmit the disease without treatment.—ED.]

SUCCESSFUL INDOOR WINTERING WITH BEES SHUT IN THE HIVES.

I put my bees (38 colonies) in my house cellar Dec. 12. I had no way of making a partition to darken the cellar, so I put a block across the entrance and shut them in. I put two 2×4's up edgewise on the cellar bottom, and just piled the hives up three deep. I took them out to-day for a fly, and found every one practically as good as when they were put in. They are in eight-frame Dovetailed hives and several of them weigh 60 to 65 lbs. to-day, and are practically full of bees. I did not weigh any when I put them in, but they seemed to be as heavy to carry as when they went into the cellar. I don't see how any man who keeps bees can afford to winter outdoors when it takes 20 to 30 lbs. of honey, and then lose half of them. Our cellar is very dry. We are located in Buffalo Co., in the heart of the alfalfa belt, and any man who wants to get into the best farming and bee country on earth can come in here and we will not complain about being crowded. The president of a large bank in this county told me they had several hundred acres of alfalfa on their farms, and they wished some bee-man would locate near it to see if it would not help the seed crop. T. J. QUAIL.

Miller, Neb., Feb. 20.

[We usually consider it bad practice to shut bees up in their hives in the cellar unless a large amount of ventilation is given. It would be my opinion that the result will not be so favorable later in the season. I should prefer to take the chances with light rather than with closed entrances.—ED.]

SWEET CLOVER; YELLOW NOT AS HARDY AS WHITE.

I bought some sweet-clover seed of you last year, yellow and white. The yellow came up a good stand, but died, root and all, in July. The land would have made 800 lbs. of seed cotton per acre—sandy land with red clay subsoil. The white clover is on very nearly the same kind of land, but is nearer the branch. The frost killed it in December, but the roots are still alive. It is starting new growth below the top of the ground. I did not use any manure or fertilizer on any.

Seneca, S. C. R. L. BOGGS.

MAPLE SAP.

In the spring if a maple limb gets broken will the bees make honey of the sap that flows? Would it be of any value to feed to a colony short of stores at that time—about March 1? HARRY SELDERS.

Brookside, W. Wa., Feb. 11.

[Yes, the bees will gather maple sap the same as any other sweetened water. They would invert it or modify it just the same as they would the nectar of flowers, but it would not be honey any more than sugar syrup fed to bees would be honey.—ED.]

A LITTLE "KINK" IN SCRAPING SECTIONS.

While visiting a neighboring bee-keeper recently, I told him during our conversation how the use of salt in the manufacture of comb foundation came about. "Yes," he said, "valuable discoveries are sometimes made through seemingly trifling circumstances. For instance, one day while scraping sections I went and cut off some bacon with my scraping-knife, and then returned to my work without thoroughly cleaning the knife. Just try wiping your knife occasionally on a piece of bacon skin, and see what a difference it makes."

Well, I have tried it and found it a decided improvement. No matter how gummy the bee-glue may be, it does not stick to the knife and fingers as before. The knife, of course, should not be so greasy as to make spots on the section. The inventor of this kink is "the honest Dane," mentioned in one of Rambler's articles.

WM. MUTH-RASMUSSEN.

Independence, Cal., Nov. 3.

LIGHT-WEIGHT SECTIONS; FOUL BROOD.

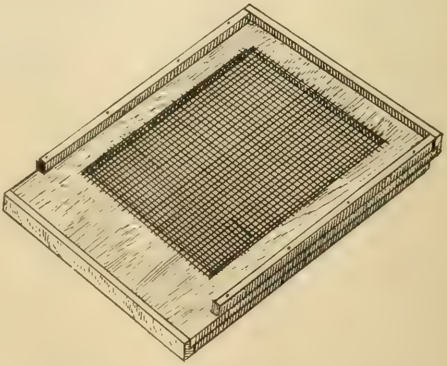
Foul brood caused my bees to fail me last year, and they did not fill my few 4×5 sections to the thickness to give full weight. I thought it was caused by fences not spacing far enough apart. Do you think disease might have had something to do with it?

De Land, Ill., Jan. 23. F. W. MORGAN.

[A light honey-flow might result in scant filling of the boxes; however, if foul brood were present in the hive it would weaken the colony to an extent where it would not crowd the sections as much as it might do otherwise.—ED.]

VENTILATED BOTTOM-BOARD.

The bottom-board illustrated is the best one for hot weather that I ever tried. It should be 10 or 12 inches from the ground so the air can pass up through the screen wire as shown. This screen allows the trash to drop through to the ground, while the air passes up to the combs. This does away with swarming to a great extent.



When gummed up it can be cleaned by holding it over a blazing fire.

It may be used in winter by tacking thin boards over the screen.

This bottom is not needed under a weak stand of bees that might go up and leave their combs exposed; but it is all right for strong ones. Bee-keepers in hot climates will soon see its good qualities.

Potts, Va., Jan. 11. JOHN J. CONELLY.

[Such a bottom-board would do very well in warm climates; but it might be too much of a good thing the greater portion of the season in the central and northern States, especially at night. For moving bees it would be very useful. But the objection to wire cloth under the brood-nest is that it covers up with dirt from the brood-nest, and, moreover, the bees will propolize it all over. Of course it can be melted off as you describe, but that is a lot of work. It would be better to provide the bottom-board with a wooden slide on the under side so that the opening can be closed as weather conditions require.—ED.]

THE PREVALENCE OF THE BELIEF IN THE COMB-HONEY LIE.

Like most bee-keepers I have been troubled a good deal in the past year about these stories of manufactured comb honey. Whenever I talk to a stranger about honey I always like to give him a chance to express his opinion on the subject. It is hardly an exaggeration to say that nine-tenths of the people believe these stories as firmly as they believe in their own judgment. Most of us have a great appetite for the marvelous, and a strong inclination to believe that we are being cheated. For this reason I think our denials are nearly useless. The world is accustomed to seeing an injurious story followed by a denial; and in any case where a lie has been received in good faith a contradiction by an interested party has very little effect.

I think our best course in fighting these lies is not to fight them too fiercely. Like all foolish stories it will finally die of mere weakness if we let it alone. In the mean time we can make our product and our dealings so honest that our neighbors, at least, will believe in us, and be ready to take our word for it when we tell them that our honey is made by the bees. If you must sell in the cities, sell in a near one, and invite your wholesale man to visit your apiary. If he comes, show him every thing, but especially the bees. If he can not come, you can at least visit him often enough to keep on good terms. Be an honest man, and he will be sure to find it out and recommend you to his customers. Above all, see that your honey is of good quality and honestly graded. After all, our best argument is a chunk of fine honey. C. F. BENDER.

Newman, Ills.

[I very much question whether we ought to let up on fighting these comb-honey lies. By our persistent warfare it has come to pass there are quite a number of publications that are now posted, and will never more allow any such nonsense to get into their columns. No, sir, 'e, let's keep up the fight.—ED.]

CLEANING SECTIONS; KNIFE BEST IN WARM WEATHER; SANDPAPER IN COLD.

For removing the roughest of the propolis, or for cleaning sections in warm weather, there is probably nothing better than a common steel table-knife with the blade cut off square two and a half or three inches from the handle. With this, one may become expert, and handle sections very rapidly. Take the section flatwise in the palm of one hand, and the knife in the other hand; and, by turning the wrist, clean the top and the edges on one side all the way round. Then turn the section over, and in like manner clean the bottom and other edges, and the job is done. There is no need of turning the section over half a dozen times to find all the edges.

For finishing, and for cleaning sections in cool weather, the best device I have yet found is a sheet of coarse sandpaper, about 9×11 inches, tacked to a board. The board should be placed at an angle so that the dust from the propolis will not remain on the paper. If the weather is cool, a single sheet will serve for cleaning hundreds of sections, making them bright as new. For beeway sections a strip of wood about a foot long can be made to fit into the beeways, and then nailed to the board and covered with sandpaper.

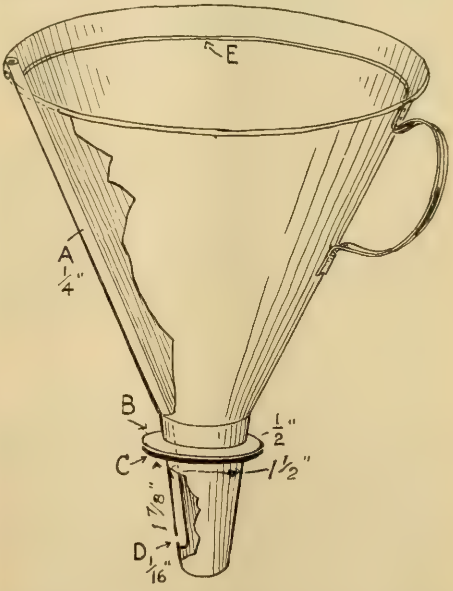
Another good device is a piece of board two inches wide and ten inches long, with sandpaper wrapped tightly around it and fastened with tacks. This is to be used by being held in the hand while the section is laid upon a board or table.

E. S. MILLER.

A HANDY FUNNEL FOR FILLING SQUARE CANS WITH HONEY.

I send you a drawing of my automatic funnel which I have used for filling square cans with honey. Its use prevents the overflow of a can, in the way I will describe.

B is a metal flange supporting the soft-rubber washer C, which seals the top of the can so that the air in the can may be expelled only through the opening D into the ¼-inch tube A.



To use the funnel, set the faucet or gate so that just so much honey flows as will run through the funnel. As soon as the honey in the can reaches the hole D it closes the same, and the honey will rise in the funnel to a certain mark, E, when it should be shut off. Then raise the funnel to let the honey out into the can, which will then be within ¼ inch of the screw-cap.

If one wishes, a little whistle can be put on the vent-pipe so as to make some noise until the air is shut off below; but after using it that way I left it off as unnecessary, for I could hear the air escape anyhow.

Pomona, Cal. M. R. KUEHNE.

[I was thinking I had seen this idea somewhere before. While I believe friend Kuehne was original, so far as he was concerned, in the use of the air-tube in the funnel, the same principle has been in use for some time. Only yesterday our gasoline-man filled our square cans with a funnel of practically the same construction as the one shown here. It had a whistle on the top of the tube so the alarm could be given at the right time. Whether the idea is new or old, there can be no doubt that such a funnel would be far more serviceable than the ordinary ones without the air-exit tube.—ED.]

FREQUENT HANDLING HASTENS GRANULATION.

After your report of the graining of the sample of honey in the factory window last year I went to work to discover the cause. I took several samples from the original lot in the bee-house, and subjected them to frequent disturbance by changing about and handling, subjecting them to about the same treatment as the sample sent you would be. Every sample so treated grained more or less during the season, while the rest, left undisturbed, remained clear and perfect.

The result of this experiment I consider of great importance. It is so to me, at least, and I report it to you without comment. H. R. BOARDMAN.

East Townsend, O., Feb. 13.

[There can be no doubt that frequent handling hastens granulation. There have been many reports that go to show that; but in the case of the sample you sent here, and which was left on our window-sill, the bottle, after it reached us, was put on the window-ledge, and was not touched during all the time we had it, but once. The condition of the honey was noted by looking through the window.—ED.]

KEEPING BEES IN AN ATTIC.

I have an upstairs in my house, that I am not using. It is of the 1½-story cottage plan, and has plenty of windows for light and ventilation. What do you think of the idea of placing my bees up there and following the suggestion of Mr. Doolittle, on page 132, with reference to approaches? My home is in town, and my lot is small; so if I could place them there it would annoy my neighbors less, and leave me more garden space below. When would be the best time to move them? (I can front my hives either east or south.) CHAS. M. GATES.

Girard, Ill., Feb. 6, 1905.

[You can keep the bees in the upstairs part of the house; but arrange it so they can have a flight, either through the window or through a hole in the wall. This would be practically a house-apiary on a small scale. In view of your limited room I think you will find the plan will work very well.—ED.]

DEAD VIRGIN QUEENS IN JANUARY; WAS IT SUPERSEDURE?

I was looking over the hives to see how many dead bees they had carried out, and found one that had the entrance clogged with dead ones. I ran a wire far back into the hive to clean it, and out came a dead virgin. I raked again, and out came another, so I was satisfied they had superseded the old queen.

I have been in the bee business for six or eight years, producing honey and raising queens, but I have had no experience in bees superseding in January. Please tell me whether the queen in this hive will get fertilized. H. A. ROSS.

Evansville, Ind.

[The probabilities are that the old queen was superseded some time in the fall. It being late, the virgins could not be fertilized. If you look further you possibly will find another virgin which, on the principle of the survival of the fittest, killed the other two, as only one queen would be allowed in the hive. If present she may have been fertilized, and will begin laying some time in the spring.—ED.]

WHAT TO DO WITH UNFINISHED SECTIONS.

I find that I have on hand six supers with partially filled sections. Will you kindly inform me as to what is the best use to make of these? A. J. WARNER.

Elmira, N. Y., Feb. 13.

[I would advise placing the unfinished boxes over strong colonies, letting them carry the honey down into the brood-nest. But a quicker way to clean them up is to set them out in a stacked-up hive 200 or 300 yards from the yard, closing the entrance so only one or two bees can pass at a time. The bees will very soon rob them out, cleaning the combs perfectly. If the sections are then leveled down with a comb-leveler you will find them very serviceable for baiting in your regular section-super in connection with other sections of foundation. Indeed, the bees will occupy such sections much sooner than foundation; and in a light honey-flow they will fill them when sections containing foundation would be little more than drawn out.—ED.]

DOESN'T LIKE HOFFMAN FRAMES; HARDER WOOD, ETC.

My objection to the Hoffman frame is that you must lift out the division-board, and come right straight up in the eight-frame hive, or a frame in the ten-frame hive, and in most hives this is by a tight squeeze that you succeed, and especially so when you use as light a frame as the average factory-made one.

I have handled almost all the different styles of Langstroth frames, and I like the loose or unspaced thick-top-bar frame best of any. I also want them to be made of ½-inch lumber, using a much larger nail than is commonly used. I like the Hoffman frame when I go to move hives, frames, and all, but not when I move the frames alone. The old-style thin top-bar is not as good as the Hoffman; but when one lives in a place where propolis is plentiful, don't give him the Hoffman.

If you would like to experiment a little, just try some harder wood than pine for a top-bar, and you will be agreeably surprised for many years, for these same frames will hold nails better than pine, especially white pine. I like a basswood frame better than pine, and poplar is still better. Also try nailing your bottom-bars to your end-bars by nailing them through the edge of the end-bars, and crosswise of the frame, end-bar, and bottom-bar. J. A. BEARDEN.

Harms, Tenn., Feb. 13.

HOFFMAN FRAMES; SHORT TOP-BARS AND V EDGES PREFERRED.

I consider the Hoffman the best for my use. I have tried a number of different makes but am discarding all but the Hoffman. I also think the V edge is all right, because, first, it retains the spacing better; and, second, because they do not kill the bees as do the square-edged ones. The difference in bees probably would not amount to a great deal, but the extra stings are quite an item.

Again, I would not have a frame that comes clear out to the end of the hive. In cool weather they always come loose with a snap, which, unless accompanied with a cloud of smoke, means more stings. I might state that I never use a veil, as it obstructs my vision. I think if those parties who advocate long top-bars would properly staple their frames they would get along all right with them as they are. Another thing is, if a hive warps to such an extent as to make a long top-bar necessary it had better be fixed or discarded, because in a short honey-flow it is a nuisance on account of robbing, and in a good one it will be filled with burr-comb wherever the space is wider than it should be. JOHN W. SCHLENKER.

Ankeny, Ia., Feb. 14.

A FOUL-BROOD BILL FOR CONNECTICUT; BEE-KEEPERS OF THE STATE URGED TO WRITE TO THEIR LEGISLATORS.

I have introduced into the General Assembly of this State a copy of the Wisconsin foul-brood law, the disease having made its appearance in this vicinity.

I should appreciate it very much if you would call the attention of the bee-keepers of this State to the matter, and ask them to write to their Senator and Representative, urging its passage.

STEPHEN J. GRIFFEN.

Bridgeport, Conn., Feb. 9.

A PRETTY APIARY IN YORK STATE.

This is a part of my apiary. On the left is an ash-house, while on the right, out of sight, is my home. The apple-tree touching the side in the background is in a young apple orchard. In the distance is second-growth hemlock and basswood. You can see the bees on part of the hives, and apples on the trees. E. M. LAWRENCE.

Mayfield, N. Y.

TO PREVENT BEES FROM MIXING WHEN SETTING OUT.

In the spring when setting my bees out of the cellar, they mix so badly that some of them are almost depopulated (the thermometer registering 60 or 70 degrees in the bee-yard). They are put out about the middle of April. They come out with great fury, and my loss is very heavy some springs because they mix with other colonies.

SETH DOAN.

Molesworth, Ont., Jan. 25, 1905.

[Set them out toward night—too late for them to fly. In the morning they will have quieted down. It may be advisable to set a part of the bees out at one time and the rest at another. By practicing both plans you will probably have no trouble.—ED.]

PUTTING UNFILLED SUPERS BENEATH THE BROOD-CHAMBER.

Last fall, after extracting in the summer from my four colonies of bees, there was a lot of honey in the supers; but I did not have an extractor, and there was not enough honey to pay for the trouble of borrowing one, so I put the supers under the brood-chambers (my idea being to hold the heat to better advantage). Now suppose I find that honey candied in the combs in the spring, what can I do to save the honey and combs, or at least the combs? Was this a good plan? A. J. SULEM.

Payette, Ida., Jan. 20.

[Soak the combs in warm water over night, and then give them a whirl in an extractor. But you have no extractor. Well, set one down in the center of a brood-nest when the queen is laying well. Better get an extractor.—ED.]

OUR HOMES,

BY A. I. ROOT.

Blessed is the man whose delight is in the law of the Lord.—PSALM 1:1.

Some of my critical friends will tell me, perhaps, that my text is not in the Bible, and no doubt some of you will get your Bibles and turn to the first Psalm to see where I have blundered. In fact, Mrs. Root herself said, when I told her what my text is to be, that I did not get it right. But I insisted then, and I do insist now, that the first and second verses of the first Psalm read, "Blessed is the man whose delight is in the law of the Lord." By the way, what a beautiful thought that is, any way! That word "blessed"! how grandly it expresses the thought! "Blessed" does not mean that the man shall be successful in business. Later on it says that whatsoever such a man does shall prosper. But it is worth a thousand times more to be "blessed" than to have the wealth of Solomon without the blessing. And that word "delight"—what a bright picture that is of a real sincere godly man—one who is a Christian through and through! Do you say there are none such nowadays? O my dear friends, you are mistaken. There are many people whose actual delight is in the law of the Lord; yes, and people who meditate on this law day and night. Of course, they are human like you and me, and subject to selfish impulses now and then; but we must make allowance for them. Even the great Father himself "knoweth our frame that we are but dust." But if we continue to delight in his law, and meditate on it day and night, the Holy Spirit will help us to get out the remnants of self and selfishness.

I have talked to you, dear friends, a good many times of late about the great achievements the world is making. I need not go over the list again. You remember all about it, especially when my talk culminated in flying-machines. Well, I think I have before said it made me feel sad to think that there did not seem to be a like progress made in spiritual matters. We have a great lot of wonderful inventions—yes, startling ones—but no invention to make men honest—I mean honest of their own accord from within. Why, it seems almost the other way. The more great discoveries God permits us to make, such as getting oil out of the ground, lightning out of the sky, or, perhaps, more properly speaking, from our great waterfalls; telegraphing without wires; light, heat, and power without consumption of material (radium) with all these things there seems to be no growth in that direction—that of being fair and liberal to our fellow-man. Why, these great inventions have actually furnished the means to *help* men to grasp, and grind down their poorer neighbor.

When I was out in Arizona I told you about a river called the Hassayampa. Well, it is said that the man who drinks of the waters of that river can never tell the truth afterward. In reading the great dailies, one can imagine a great lot of us (yes, I mean *us*) had been drinking of the waters of this remarkable Hassayampa. Now, then, friends and neighbors, if we could only discover a river somewhere in the wilds of Africa or the great West, with waters of such virtue that those who drink of them could never tell an *untruth* afterward, what a glorious thing it would be! and, may the Lord be praised, we have got a *glimpse* of that very river, even if it is not as yet found here in the United States. I have caught a glimpse of it, and I hope that it has filled me with more enthusiasm and joy than even the flying-machine. But I am not done with the flying-machine by any means. Perhaps we shall have both right along together.

Well, the glimpse of this river came to me through a tract. I wonder how many of you throw away the tracts or shove them into the waste-paper basket without having read them—these tracts that come floating through the mails. Sometimes I have been tempted myself to say, "I wonder if these well-meaning people have an idea that I have no other business than to look over the piles of tracts they send me." Well, I did not say it, and I am glad; but I did say, "God helping me, I will try to give a reasonable amount of time to every tract or circular of any sort that somebody thinks best to send to me." I am very glad now that I adopted the latter plan, for I have in this way gotten hold of some wonderful gems, at least they are such to me, not only in spiritual matters, but in science and rural industries, agriculture, etc.

This tract which I wish to review especially just now is a description, by the Rev. G. Campbell Morgan, D. D., of the Welsh revival. It is a sermon he preached in Westminster Chapel, London, last Christmas day. It describes a visit of his made about that time. I do not know what has been done through January and February in that line of work, but perhaps some of our readers can tell me more about it. You have doubtless heard more or less about the wonderful Welsh revival. Let me tell you briefly what I get from the tract. These revival meetings are kept up two or three hours at a time. Now, do not express disgust because you find it hard to sit in church for one hour or less. In this new form of revival the people do not all go at once and stay till the meeting is out. They are coming and going. In that respect it is probably something like the noonday services in many of our large cities here in America. There is no evangelist and no minister. Evan Roberts has, of course, had much to do with this revival, but he occupies comparatively little time. Their meetings are not in any one particular locality. Dr. Morgan says if one could be up the air and get a glimpse of the places where revival meetings have started it would be something like little fires breaking out here and there, first in one locality and then another, and oftentimes in localities so far from each other that one can hardly see how the influence has gone from one church to another. In one sense the meetings are a scene of disorder; and in another sense they are the most quiet and orderly meetings ever held. The time is all occupied by singing, praying, and personal testimony. Dr. Morgan says the only break he noticed in the first meeting he attended was when somebody who happened to know him asked to have him speak, and this interrupted the work that was going on to such extent, in his opinion, that he then and there declared in his own mind he would not go again unless they would permit him be just one of the audience.

Well, there is not only a constant succession of singing, praying, and speaking, but there are interruptions. While somebody was praying, somebody else would break out in song. Then the song would be interrupted by prayer. While somebody was giving personal testimony, however, I think there was seldom an interruption. There is no human leader. There is no instrumental music, and, lastly, there are *no hymn-books;* and yet they sing old well-known hymns through from beginning to end. Very often the one who starts a hymn does not know more than one verse, but somebody else does; and under the influence of the Holy Spirit they almost sing hymns they do *not* know. No wonder Dr. Morgan said it was like men speaking in unknown tongues on the day of Pentecost.

I have not space to go into the details, but I am going to tell you a few of the most wonderful things. A business man was present in one of these meetings. He had been for years teaching a class of young men in Sunday-school. He had prayed for their conversion, but he was one of the kind who find it very hard to have personal talks with people. While in one of these revival meetings his eye caught sight of one of these young men. While he was thanking God that at least some of his boys were attending the services, something prompted him to go and plead with the young man. He did so, and in a few minutes this youth arose in meeting and gave himself to Christ. Then he with his teacher sought out another one of that class of eighteen, and he too rose up, acknowledging the Savior, and before long the whole class of eighteen had enlisted for life as followers of the lowly Nazarine.

Such stories seem strange and incredible, but their truthfulness can be attested by hundreds of people. Like Jesus' work here on earth, none of it is done in a corner, but out in open day in the sight of all men.

A business man who is a professing Christian got to thinking about an intimate friend of his with whom he had had close business relations for years, but had never mentioned the subject of religion to him. One morning during these meetings he went to the office of this friend and boldly announced that he had come to talk with him for once in his life on something that was not business. This friend smiled in a peculiar way, and finally said, "Mr. A, let me explain to you why your call has given me wonderful pleasure. Last night I could not sleep. I was thinking of these revival meetings and of my duty to my fellow-men and to my Savior and my God. My conscience troubled me, and I got no rest until I arose from my bed and on my knees asked God to forgive me and take me for the rest of my life into his care and keeping. This morning I was longing to talk with somebody about the new departure I was about to commence; and as I know you so well I would rather talk with you about it than almost anybody else."

Now, friends, is not this a wonderful example of the way in which the Holy Spirit comes simultaneously into the hearts of men? It makes one think of when Ananias was bidden to go and talk with Paul. Dr. Morgan says that at one of these meetings he stood for three hours so solidly wedged in the crowd that he could not even lift his hand. Every little while during the services somebody either announced that he had come out for Christ Jesus or that some friend had given himself to the Savior as a ransomed soul.

Now, this story of mine does not amount to so very much until you take into consideration the fact that *20,000* people united with the different churches of Wales in just five weeks of this revival, and this report was made last December. Where did this new movement start? Nobody knows. It did not start with Evan Roberts—at least he says so. Some say it started at an Endeavor meeting. God bless the Endeavorers! And, by the way, Dr. Morgan tells us that such a great thorough change would not have been possible were it not for the fact that the good people of Wales have been for a long time back attending faithfully their various religious services. The Endeavor meetings had taught the people, young and old, to become so familiar with Gospel Hymns it was not so very strange they could keep up the praise meeting without books or organ.

The revival is not confined to people who attend church—it is in the air; it is all over. One of the preachers who had been assisting in the work confessed that he had been carrying a sermon for three in his pocket. The sermon was not needed.* One new convert from a factory said, after his conversion, "Tell all the men—tell all you meet, that I am converted." There was no backwardness nor diffidence about such a conversion.

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* Do not imagine for a moment, dear friends, that either I or Dr. Morgan means to intimate that ministers are not needed. Unless the pastors of the churches where these new converts are taken in follow them up and keep the hold of the church upon them, a great part of them, at least, will go back. It may be we shall not need so many long sermons; but the pastors of all the different churches are going to be needed more than ever before since the world began, in order to hold what we have.

What does it all amount to? you may ask. Well, vicious men have stopped swearing; stopped beating their horses; cruelty to animals and swearing are out of fashion; better yet, men as fast as they are converted go to paying up their old debts; to making friends with those with whom they have quarreled; and where there have been differences in deals each side vies with the other in showing a liberal spirit and in bearing more than his share if necessary. One can not help saying as did Nicodemus when he met Jesus by night, "Rabbi, we know that thou art a teacher come from God; for no man can do these miracles except God be with him." And no man who sees this work of grace going on in Wales can for a moment doubt that it comes from God.

The tract* concludes by saying, "Can we copy their method?" Dr. Morgan would not undertake it. Do we need to go to Wales to learn how? Not at all. It is God's work. All we can do is to be ready and to fall in line and help it along when it comes near us—to be, as the Bible expresses it, like clay in the hands of the potter, and let the Holy Spirit fashion us.

Now, friends, I leave it to you. Am I not right in saying Wales is giving the world a glimpse of this wonderful river that makes men honest? Oh that our millionaires, the men who are managing our great trusts, could get a glimpse and a good big drink of these living waters! that they might of their own accord heed the promptings of the Holy Spirit within their own hearts, and cease oppressing their fellow-men — cease coveting "the whole earth," and delight in helping along our great industries, with their hearts overflowing in Christian love for every one of their fellow-men, whether he be in their own line of business or some other. God hasten the day!

We have just had a Sunday-school lesson about Jesus' talk with the woman at the well, wherein he said, "Whosoever drinketh of the water that I shall give him shall never thirst."

In the above beautiful words spoken by the Master to that Samaritan woman, there is, it is true, nothing particularly said about his followers being truthful and honest, and fair in deal; but would not this, as a matter of course, be included? And is it not true, as in the figure I used in the fore part of my talk, that whosoever drinketh of the water that Jesus gives shall be, in the very nature of things, unable to tell an untruth afterward, knowingly, or to be unfair or unjust with his fellow-men? If this is true, shall we not all say, in the language of that poor sinful woman, "Sir, give me this water that I thirst not, neither come hither to draw"?

HIGH PRESSURE GARDENING
BY A. I. ROOT.

SWEET CLOVER, NITROGEN NODULES, ETC.

Just now the government and a good many other people are waking up to the great value of sweet clover through some unexpected developments in the nitrogen-nodule business. The information comes through our agricultural periodicals, and from those who are not bee-keepers and in no way interested in the honey business. Sweet clover has shown itself to be one of the readiest plants to get hold of the bacteria and produce nitrogen nodules. Dig up a sweet-clover plant in any vicinity and you will probably find them in plenty. If not, treat the seed by the government formula, and see how quickly it takes hold of it. Now, it has been commented on again and again for years through our bee journals that sweet clover thrives where no other plant will grow—barren hillsides, railroad embankments, along roadsides, etc. Why will sweet clover thrive where no other plant will grow? Perhaps nobody ever thought of it, and I did not until I noticed the way in which the new developments were running. Why, bless your heart, friends, sweet clover gets its fertility by getting *nitrogen from the air.* It does not seem to care whether there is any fertility in the soil or not. In fact, it rather seems to prefer barren soils providing the ground is well drained, either naturally or artificially. Now, the next refreshing point is that the bacteria that come from sweet clover are so nearly allied to that from alfalfa, its near relative, that they work interchangeably; and one of our agricultural papers suggests that the quickest way to get these bacteria into the soil is to start with sweet clover. You may remember that I wrote up the fact while in Salt Lake City and that region, that sweet clover has the remarkable property of sweetening their bad alkaline soil so that the ground will produce any other crop. We have not heard very much of late in regard to sweet clover being a noxious weed that cattle, horses, pigs, etc., would not eat.

Just one thing more: You may remember that the Ohio Experiment Station stated a few years ago that a moderate growth of sweet clover plowed under produced a wonderful effect in increasing the crop of wheat that was put in the ground afterward. The sweet clover was on a streak running through the field. Where it grew, the increase was away ahead of that on the remaining part of the field.

There is one queer trouble with the sweet clover, however. It seems to be a difficult matter to get a good stand of it on most soils. Where it goes to seed, and the seed drops on the ground and springs up itself, it comes up with rank luxuriance, covering the ground with a heavy crop. But when we prepare our ground carefully, and sow the seed in the way we sow other clovers, there seems to be trouble in getting a uniform stand. Will those who have had experience kindly let us know about getting a stand by sowing the seed? We have not had any reports along that line very recently.

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* The tract I have been describing has 16 pages, and is furnished free of charge to all. Address A. P. Fitt, 250 La Salle St., Chicago, Ill. If you feel inclined to help bear the burden of printing these tracts, sending them by mail, etc., you can also send some stamps or money, just as the Holy Spirit prompts you to do, to the above address.

Perhaps I may remark that the government has just sent me a package of the "culture," sufficient to prepare an acre for alfalfa. The bacteria-infected cotton could be put in one's vest pocket without any trouble. The chemicals that go along with it would probably go in the other vest pocket if it is a pretty good-sized one. See page 140, Feb. 1, and 261, March 1.

LONG-RANGE WEATHER FORECASTS; FAKE ALMANACS, ETC.

The Weather Bureau informs us that the present month of February so far (the 20th) is the coldest on record for the past 34 years. May I ask once more why the weather-prophet did not tell us, when he made his almanac, that this would be the case? If he has foreknowledge, divine or otherwise, he certainly must have noticed that peculiarity of February. If his friends urge that he can not tell about *temperature* they will also have to admit he can not tell us about dry weather either; for he did not say that last November would be the dryest November all over the Northern States since the Weather Bureau was started. Now, if he can not tell dry weather in the future, or extreme cold either, what does he tell us? Storms and tornadoes? Very likely; for he and his satellites can hunt up a storm, and perhaps a tornado, every week in the year by hunting the country over. Such things go by localities more than dry weather and low temperature. That excellent periodical, the *Country Gentleman*, has just been giving us some good articles on this subject; and I entirely agree with them that it is a disgrace to the science and civilization of the present day that there are even a *few* people defending "the St. Louis astrologer," as they justly designate him.

Since the above was written I have received from the Weather Bureau a very interesting bulletin of 68 pages, entitled

LONG-RANGE WEATHER FORECASTS,
Prepared under the Direction of Willis L. Moore, Chief U. S. Weather Bureau.

This bulletin sums up the work of all the weather-prophets, and tells me something I did not know before—that our U. S. Weather Bureau has carefully examined the claims of all these weather-prophets, and with its vast information regarding the weather of the whole United States it has been enabled to say better than any individual could possibly decide, whether there was any possible chance to claim foreknowledge. In regard to the St. Louis astrologer, or at least I suppose they mean him, they write as follows:

> Aside from platitudes regarding average weather conditions that prevail in April, he announced that—
>
> "One of the most decided, and perhaps violent, storm periods of the month extends from about the 25th to the 29th."
>
> In the United States the period was a quiet one, and the disturbances that appeared (and one or more surely would appear within the area of the United States during the period specified) were not attended by "very general and violent storms, destructive hailstorms, and abnormal downpours of rain," which, according to the detailed forecast, should have been experienced.
>
> His forecast statement for May, 1904, ends as follows: "The fifth storm period will be central on the 29th, and there will be violent disturbance. Watch the barometer, and if you have a trembling wife and children clinging to you for protection, provide some place of safety in which to resort in case of danger."
>
> Is it possible to soar to greater heights of nonsense? In what particular continent or country will the storm period be central on the 29th? Is the entire population of the United States, or of the world, expected to dig cellars or caves of shelter in anticipation of a possible occurrence of a tornado whose path of destructive violence would not cover an area represented on a large map by a mark one-half an inch in length made with a sharp pencil? Is it possible that a man who issues such totally unwarranted, sensational, and harmful forecasts is seriously considered by the intelligent portion of the American public? I regret to say that he and others of his kind have a considerable constituency.

DUFFY'S MALT WHISKY—MORE ABOUT IT.

A. I. Root:—Enclosed I send you an ad't, cut out of the Sioux City *Journal*, of Duffy's malt whisky, recommended by a minster of the gospel, thanking God for such a medicine. Dear Bro. Root, do you think there is a minster of Christ thanking God for Duffy's malt whisky? or is this a fraud such as you exposed last summer in case of the old German?

Vermillion, S. D., Jan. 9. E. A. MORGAN.

Friend Morgan, I should say without hesitation that the testimony from this minister is a humbug. It ought to be called forgery. We have not investigated this case, it is true; but several others were followed up by temperance people, and it turned out to be a pure forgery. The man 107 years old never heard of Duffy's malt whisky—never tasted it in his life. In fact, he is a German and does not speak English; yet the Duffy people printed a letter from him in English and signed his name to it—see pages 617,769, last year. Another, a woman, over 100 years old, gave emphatically the same testimony. They sent both parties a case of whisky as a recompense for forging letters and forging their name. But the old people had no use for it, and did not know what to do with it. I forwarded the above facts to the Department, Washington, D. C., asking if something could not be done to stop such broadcast forgery of letters with good people's names attached. They replied in both cases with a printed sheet, saying that, unless I personally had been injured, or had lost money by the parties mentioned, they did not know how they could do any thing with them. If every periodical in our land would show up this rascality (to call it by no worse a name) it might prevent innocent unsuspecting people from trying whisky as a medicine because ministers of the gospel and people over a hundred years old recommend it. Everybody should help expose whisky frauds of this character.

The Woman's Christian Temperance Union wrote to two if not more ministers who had given them testimonials. One said it was an out-and-out fabrication. The other was from a man who used to preach, but is now an imbecile. They took advantage of his infirmity, and got his consent when he did not know what he was talking about or what they wanted.

CONTINUING PERIODICALS WITHOUT HAVING ORDERS, FROM THE ONE WHO SUBSCRIBES, TO KEEP THEM GOING.

A few days ago the following letter was handed me because I have expressly requested to see all severe criticisms in regard to the way The A. I. Root Co. does business:

> *Gentlemen:*—Last spring, when I received a sample copy of your journal, I was pleased to see you agreed to stop it when my time was out, and my subscription was sent in in good faith, and a request to be sure to have it stopped; but, lo! not a stop. Now I suppose it will take months to stop it, but I am equal to the occasion. I never have failed yet, and I will succeed in this. I do not allow any paper or magazine to come to my address unless it stops as soon as its time is up for what I have paid for. I consider it a sneaking way to get my patronage to continue to send me your paper or journal contrary to my orders, regardless of its value, and I will lend my might to persuade all to shun all literature that does not stop as soon as time is out. It will grace the roadside by my mail-box from now on, and passers-by would learn the cause. It will be explained as a creeping, sneaking nuisance. ROBERT GREEN.
>
> Earlham, Ia., Jan. 5.

Just as soon as I went over the above I called for his former letter where he ordered GLEANINGS, and here it is:

> *Gentlemen:*—Find 25 cents in stamps inclosed for six-months' trial subscription to GLEANINGS. Stop at expiration unless otherwise ordered. ROBERT GREEN.
>
> Earlham, Ia., Mar. 28.

You will notice that our vehement friend sent only 25 cents for a six months' trial subscription. He does say in his letter, "Stop at expiration," and I am very sorry to say that the young lady who attended to the subscription, for some reason I can not explain, failed to put on the mark, "To be stopped at the end of six months." She is a comparatively new clerk; but I think after this she will not be likely to overlook this part of her work.

Now, our friend is unduly vehement, and certainly it is very unreasonable to write such a letter as his first one before he had politely asked for an explanation. But his letter seems to indicate that he has had trouble before in getting periodicals stopped when the time was up; and from what I read in different publications I am inclined to think there *are* periodicals the publishers of which try to force them on the people at large; and the worst part of it is, that, after having done so, they hand accounts over to various collection agencies which, it seems, get quite a little money by frightening good people into paying for something they never ordered and did not want. I explained the matter to friend Green, and asked him if he did not owe us an apology, but I have not received one yet.

And now let me say, as I have been saying all along, that, while it is true we continue our journal without orders, where parties do not say any thing about having it stopped, it is also true we never expect anybody to pay a copper for GLEANINGS that was sent without orders and was not wanted. In other words, if we send it without orders it is our loss and your gain unless, when the circumstances are explained to you, you decide it has been of some value in your home and family, and therefore you can afford to pay us something for it.

HATCHING HENS' EGGS IN A BEE-HIVE.

I suppose the story is still going the rounds of the press. One of our subscribers sends us a clipping containing a picture of some hives. One of them has the cover removed, showing the eggs in place under the chaff cushion. We can not tell the name of the paper from which the clipping was made. It reads as follows:

> #### FARMER FINDS BEE-HIVE GOOD INCUBATOR.
>
> The common honey-bee is the latest kind of an incubator. That may seem a foolish statement, yet it has been practically demonstrated by an Ohio farmer. Hereafter the patient hen may have a rival in the industrious little insects, for they can be used to hatch hens' eggs as well as the most improved pattern of incubator.
>
> What is more, the bees can outstrip the mother hen by two days. It takes the hen twenty-one days to hatch a setting of eggs. A colony of bees can do it in nineteen.
>
> Henry Decker, an old resident of Rome, Ashtabula County, Ohio, is the first person to utilize the heat generated by bees in the hatching of chickens. He is able to hatch 100 chicks from 100 eggs in nineteen days.
>
> Mr. Decker said: "I was transfering a swarm of bees one day, and noticed the temperature was about the same as I always had it for my incubator, so I got my thermometer and tested the heat that night.
>
> "My wife wanted to know whether there was not another hen that we could set. I told her that I thought so, and I put twenty eggs in the bee-hive that night. I said nothing to any one, but waited to see what would be the result.
>
> "In just nineteen days I happened around the hive, and heard a funny noise. Upon hearing it I found eighteen chickens out of the twenty eggs.
>
> "Since that time I have tried different numbers of eggs, and have always done as well according to the number of eggs that I put in."
>
> Mr. Decker has been deluged with letters of inquiry, requests for illustrative drawings, photographs, etc., but this is the first time that his likeness could be secured. He is in the act of removing the covering from the eggs inside the hive. The cover is an old chair-cushion. The eggs lie on a cotton cloth, which separates them from the bees. Another cushion made from a quilt, is placed around the edge. Mr. Decker has received letters from nearly every State in the Union, also from Germany and other foreign countries.

Among several communications in regard to the matter we give the one below. I have written Mr. Decker about his success, but have as yet received no reply.

> #### HATCHING HENS' EGGS OVER BEES.
>
> I have tried it once over a strong colony of bees, two thicknesses of burlap under the eggs, and over the frames a frame of common lath just large enough to rest on the outer edge of frames; burlap between the lath and eggs; a good big warm cushion nicely tucked down all the way around, eggs turned over every day or every other day. At the end of four weeks, not a chick; eggs were not even spoiled. I am sure it was not a good thing for the bees. Now, it seems as though the conditions were all right, except it was too early in the season for continued hot weather. I tried it in dandelion and fruit-bloom.
>
> Eggs were always cold on top when I went to turn them over. If it happened to be cold weather I warmed a new cushion and changed the cushions. I presume it would work in extremely hot weather; but then I want the bees to work at something else.
>
> Mt. Pleasant, Mich., Feb. 22. H. S. WHEELER.

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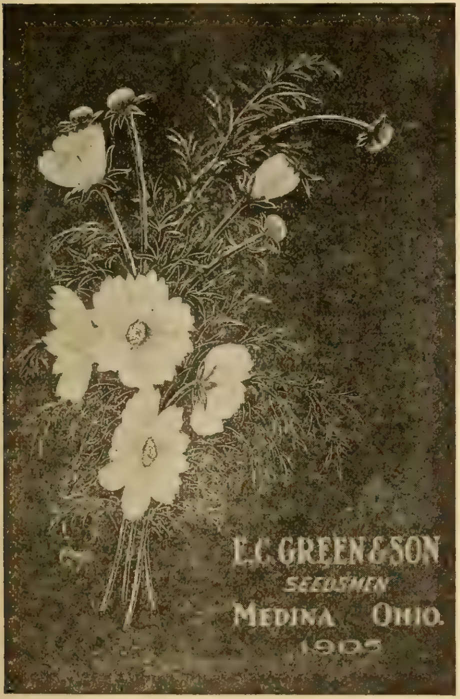

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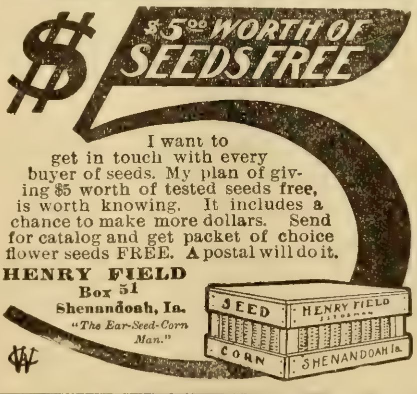

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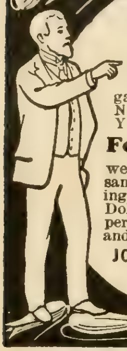
69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**



Salzer's National Oats

Greatest oat of the century. Yielded in Ohio 187, in Michigan 231, in Missouri 255, and in North Dakota 310 bus. per acre. You can beat that record in 1905.

For 10c and this notice

we mail you free lots of farm seed samples and our big catalog, telling all about this oat wonder, Billion Dollar Grass, Macaroni—the 80 bu. per acre Wheat, Teosinte, etc., etc., and thousands of other seeds.

JOHN A. SALZER SEED CO.
La Crosse,
Wis.

Garden Seeds

The good garden depends on good seed and right soil. We would like to supply you with the good seed and will send 1 package each of **Beet**—Egyptian; **Cabbage**—Surehead; **Carrot**—Danvers; **Corn**—Early; **Cucumber; Lettuce; Musk Melon**—Rocky Ford; **Water Melon**—Peerless; **Onion; Radish**—Scarlet; **Squash**—Marrow; **Tomato**—Beauty; also a package of Mixed Flower Seeds and our new **Annual Seed Catalog** all for 20c.

W. W. BARNARD & CO.
161-3 E. Kinzie St., Chicago, Ill.

Strawberry Plants and Seed Potatoes.

NEW STRAWBERRIES

You can make more money if you plant intelligently. Write and tell us about your soil. We'll send you our **Free Descriptive Book.** Over 100 varieties.

THE FLANSBURG & PEIRSON CO.
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Fruit Growers
AND FARMERS

Thousands of the best fruit growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free.

THE SOUTHERN FRUIT GROWER, Box I, Chattanooga, Tenn.

TREES THAT GROW

Hardy varieties; yield big crops. Grafted Apple, 4½c; Budded Peach, 3½c; Black Locust Seedlings, $1 per 1000; Concord Grapes, $2 per 100. We pay the freight. Catalog. English or German, free.

GERMAN NURSERIES Carl Sonderegger, Prop.

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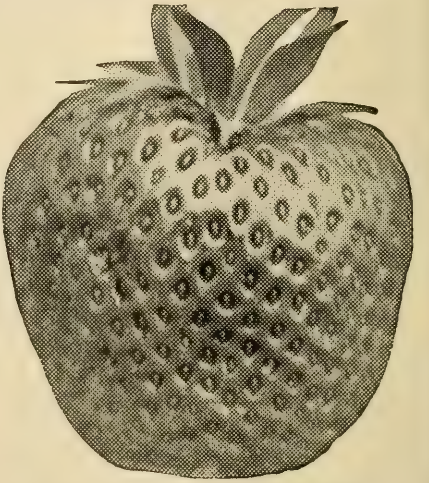
Box 100, Beatrice, Neb.

FREE--Great Crops of
...STRAWBERRIES...
and How to Grow Them.



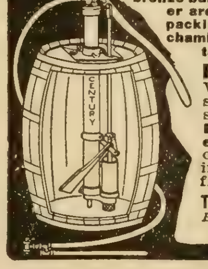
The book that is **Worth Its Weight in Gold** because it tells **How Big Crops of Fancy Berries can be Grown** every year, and **How to Market Them at a Big Profit.** It contains the **Latest Discoveries in Plant-breeding**, and has 110 beautiful engravings of berries and berry fields, showing **Actual Results** obtained by progressive growers. It tells **How to Start a Profitable Berry Farm** with a small capital. It is invaluable to the experienced fruit-grower, and gives **Plain Instructions to the Beginner.** Don't order your plants until you **Read this Book. It is Free.** Send your address to the

R. M. Kellogg Co.,
Box 400, Three Rivers, Mich.

Century Sprayer.

Best barrel sprayer made. Capacity and adaptability to suit all requirements. These are features: **Its valves are bronze balls. Cylinder and plunger are brass. Indestructible packing crimps. Large air chamber. Agitator that agitates.** Its low

PRICE PLEASES



We make twenty styles sprayers. Every need specially met with **Hand, Bucket, Knapsack, Power Sprayers.** Spraying catalog free. Booklet on insects and plants and fruit diseases 10c.

THE DEMING CO., Salem, O.
Henion & Hubbell, Western Agts Chicago, Ill.

Fruitful Trees High in Quality Low in Price

Millions of Fruit and Forest Trees, Apples, Peaches, Cherries, Grapes and Strawberries. R. Mulberry and Black Locust Seedlings at special prices. Freight prepaid on $10 orders. Guaranteed to reach you fresh and bright. Don't miss our free catalogue.

GAGE COUNTY NURSERIES
Box 647 Beatrice, Neb.

FIRE-DRIED SEED CORN

FREE

LARGE late varieties for the South, medium-early varieties for Central Districts, and extremely early corns for the Northern growers. We can supply you with any kind of seeds grown on a farm. Tell us what you want. Do you change your seed corn and plant pure-bred varieties, or are you still in the same old rut, planting the same corn on your farm year after year? Every year thousands of farmers are finding that they can increase their yield from 5 to 20 bushels per acre by planting **Armstrong's Pure-Bred, Fire-Dried Varieties.** Our catalog will show you why this is, and how you can do the same thing. For the next 30 days we are going to send five large packages of Pure Bred Seed Corn, FREE, to every farmer who answers this advertisement. Send us your name and address on a postal card TO-DAY. Don't wait until to-morrow. Send your neighbors' name, too; we want to send them free catalog and samples. Write. Write now—to-day.

ADDRESS DRAWER 49.

J. B. Armstrong & Sons, Shenandoah, Ia.

Originators of the Seed Corn Business.

"The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer

W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

Your Feeble Old Wagon

has many years' service in it. Replace its shaky wheels with

ELECTRIC

Metal Wheels.

Made to fit any skein. Straight or staggered oval steel spokes, cast in the hub, hot riveted in the tire. Broad tires save rutting and draft. Any height desired. Write for free catalogue for particulars.

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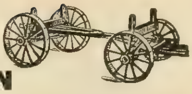
Mr. A. I. Root's Writings

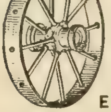
of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

FARMERS HANDY WAGON

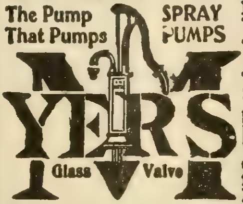




Low steel wheels, wide tires, make loading and handling easier. We furnish **Steel Wheels** to fit any axle, to carry any load. Straight or staggered spokes. Catalogue **free.**

EMPIRE MFG. CO., Box 91 F Quincy, Ill.

SPRAY PUMPS



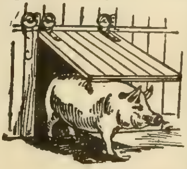
Double-acting, Lift, Tank and Spray **PUMPS**

Store Ladders, Etc.

HAY TOOLS

of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers



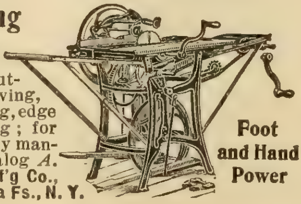
with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, • Ohio.

MUSICIANS get in touch with "EVERYTHING MUSICAL" by asking for our catalogues. We Import and Wholesale all sorts of instruments and publish all kinds of music, and our prices rule the retailer out. Buy everything you want from our catalogues. Every day's a bargain day at this big music bargain house. Write for catalogues. Ask for list of SECOND-HAND instruments, repaired and made almost as good as new.

H. E. McMILLIN, 106 Superior St., Cleveland, O.

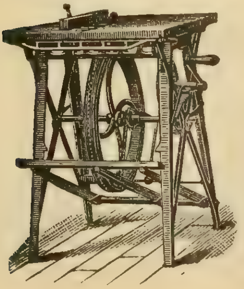
Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A*.

Foot and Hand Power

The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw which is made for bee keeper's use in the construction of their hives sections, boxes, etc., etc

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

What's the Matter With Your Buggy?

Worn out? How badly?

How's the running gear and body?

Good? All right! We can fix the rest.

We are **buggy doctors.**

Your buggy needs a **new top** and **refinish** of paint. That will put **style, wear** and **life** into it again.

How does this offer strike you?

We will make you a **new** high-grade top **to measure** in our **own** factory, **guaranteed** to fit.

We will ship it to you by **express** all charges **prepaid.**

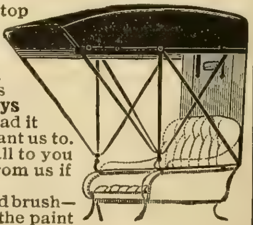
With the top we will send you **absolutely free,** express also prepaid, high-grade carriage finishing paint—either in one or two colors as you choose—to re-finish your entire buggy.

With the paint goes a first-class paint brush and full painter's instructions, together with material for removing the old paint **—also free.**

When the top and painting outfit arrives—which won't be long in coming as express travels fast—put the top on and re-finish your buggy.

How do you know you will be satisfied with the top when you get it?

That's the beauty of our plan of selling **on trial.**



We take the top back at **par**—give you every cent of your money back and prepay express charges **both ways** after you have had it **30 days** if you want us to.

We leave it all to you—**no back talk** from us if you return it.

The paint and brush—you would have the paint on your buggy and would have used the brush—wouldn't you? So we would not expect you to send that back, and it would be our **free gift** to you together with **30 days free use** of the top, just for the trouble of trying our fair proposition.

"How do we come out on such a liberal offer?" you ask.

Well, the fact is we make such **good** buggy tops that **no one** wants to send them back. The top, together with the re-finishing outfit, makes an old buggy **new** at a very small expense.

If you want to buy a new buggy, re-finish the old one for a second buggy to use in bad weather and on muddy roads. If you want to sell or trade your old buggy it will bring at least **twice as much** with a new top and re-finish

We manufacture every part that goes to make up vehicle-tops, cushions, seats, dashes, everything.

We can furnish you **any part** you want for a buggy.

We want you to have a sample of the material we use in our tops, and have some nice pocketbooks—bill size.

If you will send us your name and address, together with the name of one of your neighbors who might want a buggy top, we will print your name and address on one of these books and send it to you absolutely free, together with samples of linings, color card of paints, and our booklet "Old Buggies Made New," which tells all about our most liberal method of manufacturing buggy supplies and selling direct from factory to you.

Don't delay writing for this pocketbook until they are all gone. Do it now!

In your letter tell us how long you have used your buggy. Write for Cleveland Top Co. Catalogue No. 63.

The United Factories Company
Dept. 63 Cleveland, Ohio

Split Hickory Wheels and Running Gear

DON'T look too close at the wheels and running gear of a "bargain counter" buggy that the catalogue houses offer for $26.79. They can't afford to use the best air seasoned, selected second growth Split Hickory, free from worm holes, knots, wind-shakes and other imperfections in a $26.79 buggy.

We charge $50 for our 1905 Split Hickory Special Top Buggy and we give You Something for Your money.

Wheels and running gear of finest Split Hickory. High grade materials and workmanship all through and a two year factory guarantee that we sign in black and white.

OUR 30 DAYS' FREE USE PLAN

is the best evidence we can give that the Split Hickory Special will bear close inspection and stand the test of the road. Our Factory-to-User-Plan saves you the profits of the jobber and dealer. Our **1905 Catalogue** of Split Hickory Vehicles and Harness is now ready for distribution. Shows complete line and gives wholesale prices in plain figures. Send for it.

THE OHIO CARRIAGE MFG. CO., (H. C. Phelps, Pres.,) **Station 293** **CINCINNATI, OHIO.**

Try a Buggy at Our Expense

Do you want a new buggy? Will you try our

MODEL TOP BUGGY

if we send it to you, give you One Full Month s Free Trial use of it, a written, binding, Two-Year Full Guarantee and agree positively, without any restriction, to take it back if it does not suit you in every way and Refund Every Cent of the Money you have paid for freight or other expenses.

This is not an offer for small boys or irresponsible people, but is made in good faith to any responsible party who wants and is willing to pay the wholesale price of a strictly first-class, high-grade, right up-to-date top buggy.

A simple request, either by postal or letter, will bring you our new 1905 Illustrated Vehicle and Harness Catalogue.

Our Model Top Buggy

is equipped with 100 strong and attractive features, has 1000-Mile Dust-Proof Axles, Quick-Shifting Shaft Couplings, Screwed Rim Wheels, Velvet Carpet, Water-Proof Boot, Genuine Best Quality Leather Quarter Top, Roller Rub Irons, Rubber Padded Steps, Strong and Substantial Full Ironed Gear, Best Shell Bark Thoroughly Tested Hickory Wheels tired with ¾-inch Oval Edge Steel Tires, and is painted the equal in durability, style and finish to the highest priced buggy on the market.

Write for full description and information as to how we will send you this buggy so that you can try it fully without one cent of cost to you. If you do not want to buy a buggy, then tell some friend about the most wonderful buggy offer ever made by anyone, and have him write for our catalogue. Address

The Model Carriage and Harness Co. ***141 Sixth St., Cincinnati, O.***

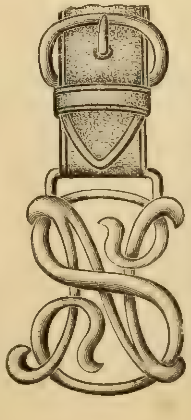
Men Who Shave

run big risk in using anything but the best shaving soap. That's the popular

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

The J. B. Williams Co., Glastonbury, Conn.



$1.00

Remittance

DIRECT to MANUFACTURERS

Your monogram fob with pigskin strap; aristocratic, artistic, as is shown in cut. Heavy gold plate. Silk ribbon, swivel, and bar, 50c extra. Brooches and purses a specialty. Pins and badges in original designs and adopted colors of enamel for clubs, colleges, schools, and societies. Design and estimate submitted.

BEAUX-ARTS MFG. CO.

61 W. 127th St., New York, N. Y.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Bees on L. frames; cash paid.
E. A. HEARN, Salisbury, Md.

WANTED.—To exchange No. 2 Williams typewriter for bee-supplies. H. S. HAUTHORN, Woodbury, N. J.

WANTED.—Bees from South Atlantic States in April.
I. J. STRINGHAM, 105 Park Place, New York.

WANTED.—Bees, hives, and Danz. supers.
S. C. JONES, Alplaus, N. Y.

WANTED.—Printer-beekeeper wants an apiary on shares; reliable. C. S. DOWNER, S. Haven, Mich.

WANTED.—Home and apiary in Southern Penn. or Maryland. THEO. JOHNSON, Lafayette, Pa.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, Centralia, Kansas.

WANTED.—Slumgum or refuse from solar wax-extractor at 3 cts. per pound.
YOUNG'S BEE-SUPPLY HOUSE, Boonville, Mo.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange Rhode Island Red cockrels for thin comb foundation.
D. F. LASHIER, Hooper, N. Y.

WANTED.—To exchange queens for white hulless barley, Leghorn eggs (near home), incubator, or offers. See ad. this issue. S. F. TREGO, Swedona, Ill.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—For April or May delivery from near-by points, bees on Langstroth or Danzenbaker frames. Write, stating full particulars.
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To buy 50 to 200 colonies of bees free from disease, located in western New York or Pennsylvania. Also to sell or exchange one 200-egg size Reliable hot-water incubator (nearly new, cost $33); ten 1½-story Danz. hives, nailed and painted, been used one year, for $15. C. B. HOWARD, Romulus, N. Y.

Help Wanted.

WANTED.—Assistant apiarist; state age, experience, and wages; May to October.
W. HICKOX, Berthoud, Col.

WANTED.—A young man to take charge of 240 stands of bees in Wewahitchka, Calhoun Co., West Florida. Must understand taking comb honey. Want best of references—prefer recommendations from A. I. Root Co.
S. S. ALDERMAN, Wewahitchka, West Florida.

WANTED.—Position as bee-keeper; references.
MISS M. COLLYER, 75 B'dway, Ossining, N Y.

WANTED.—A hustling bee-keeper to work on salary and per cent of net returns of honey, with board. Am running about 1500 colonies. Need help by April. For further particulars apply to A. L. Boyden, Medina, Ohio, or GLEN E. MOE, Candelaria, Cuba.

WANTED.—Young man or youth—strictly moral, not using tobacco or intoxicants—as a student; more than board and washing will depend on faithfulness and honey season. Out-apiaries run on non-swarming plan. R. F. HOLTERMANN, Brantford, Ont., Can.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the island. Published at Havana. $1.00 per month; $10.00 per year. Daily, except Monday.

For Sale.

FOR SALE.—Melilotus (sweet clover) seed, $2.00 per bushel. W. P. SMITH, Penn, Lowndes Co., Miss.

FOR SALE.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. REEVES, Perch River, N. Y.

FOR SALE.—Leather-colored Italian queens, 50 cts. each. H. A. ROSS, Evansville, Ind.

FOR SALE.—Twenty-six choice White Wyandotte eggs, $1.00. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—S. C. Brown Leghorn eggs, $1.00 per 15; are from fine-laying stock.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—Am booking orders now for early queens and nuclei; good stock. Write for special prices.
JUDSON HEARD, Macon, Ga.

FOR SALE.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Half or all of my bees, composed of 200 colonies and fixtures; all in good condition, at a bargain.
R. EDEN, La Veta, Colo.

FOR SALE.—Machinery; a full outfit for making bee-hives, sections, etc.; with shafting; all in good shape.
C. A. GRAVES, Shelby, Ohio.

FOR SALE.—Fox hounds and puppies. Hovey strain. Each one guaranteed. Enclose stamp for prices.
W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

FOR SALE.—One Olds automobile, 1904 make, run-about, listed $650; nearly as good as new—used but little. For price, address J. A. THORNTON, Lima, Ill.

FOR SALE.—New empty ten-frame Lang. redwood hive-bodies, 30 cts. each H. VOGELER,
210 Davis St., San Francisco, Calif.

FOR SALE.—Eighty colonies bees, 65 Dov'd eight-frame hives, and 5000 sections; $300; speak quick.
NAT. EVANS, Eldred, Pa.

FOR SALE.—High-pressure roots and plants, Senator Dunlop strawberries, and Maliner Kren horseradish.
E. K. MEREDITH, Batavia, Ill.

FOR SALE.—Twenty colonies of bees in eight and ten frame hives with Italian queens. W. G. DAVIS,
Whittle's Depot, Pittsylvania Co., Va.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah Page Co., Iowa.

FOR SALE.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
THE HYDE BEE CO., Floresville, Texas.

For Sale.—One hundred stocks of bees in good condition. Write me your prices.
Mrs. Hattie D. Floyd, Nelliston, N. Y.

For Sale.—A few more slightly damaged (by water) hives, eight and ten frame, in flat; Lewis Company make; low price; satisfaction guaranteed; a bargain. Write us. A. G. Woodman Co., Grand Rapids, Mich.

For Sale.—A two-story brick house, eight rooms; nine acres of land; good water-right; well; two blocks from school-house; also 25 colonies of bees.
J. B. Summers, Berthoud, Colo.

For Sale.—One of the finest ranches near Auburn has been sold on a mortgage, and can now be purchased for less than half of the actual cost of the improvements alone. For further particulars, address
E. B. Beecher, Auburn, Placer Co., Cal.

For Sale.—120 colonies of bees, 8½ acres of land, honey-house, and accessories; unlimited basswood and white-clover range—latter grown for seed extensively; no disease; good reason for selling. Write
Arnt Arneson, R. F. D. 2, Cameron, Wis.

For Sale.—In Ohio, 50 stands of Italian bees in Langstroth and A. I. Root eight-frame hives, now located at Batavia, Ohio; also all tools and other bee-fixtures. Will sell at a bargain. Address
John Grant, Brownwood, Texas.

For Sale.—At a bargain 200 Alley queen-mating hives, new and nicely painted; also two-frame nuclei with queen, $2.25 each, on standard frames and Italian bees. Tested queens, $1.00; untested, 60 cts. each.
W. J. Forehand, Fort Deposit, Ala.

For Sale.—At your own price, 25 colonies finest Italians, eight-frame hive-bodies, 70 standard frame combs, 20 Doolittle feeders, eight-frame unbound zincs, smokers, bee-books, etc. Write now. F. E. Smith,
6 Dartmouth St., New Bedford, Mass.

For Sale.—Bee-farm in Grand Valley, Colorado. We have a 20-acre farm—well improved, orchard and small fruits, and 80 colonies of well-bred Italian bees—to offer at a very reasonable price. This place is 3 miles from town. Other good property for sale. Write us for full particulars. Bruner & Sharpe, Fruita, Colo.

For Sale.—S. C. W. Leghorns exclusively; splendid layers; can't help but give satisfaction; can fill orders nearly the year round. Fresh eggs the day shipped, $1.25 per setting of 14 eggs. Cockrels, $1.50 to $5.00 in the fall. Mrs. H. W. Bartrum,
Chicago 'phone 415. Route 1, Newark, Ill.

For Sale.—At a bargain, fine 150-acre farm with a good four-room house, stable, cistern, and two wells; 30 acres or more rich tillable land; located on railroad 14 miles from San Antonio. An ideal location for bees. Price $750. This is a bargain. Come quick.
Udo Toepperwein, San Antonio, Texas.

For Sale.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. Hildreth & Segelken,
82-84 Murray St., New York City.

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Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here is something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
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Describes incubators, houses, feeding, care, etc. Sample free. Mention this paper. Poultry Gazette, Kansas City, Mo., or Topeka, Kan.

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With tears of sweetest joy,
That nothing can alloy,
I arise to say that
(Excuse this shabby hat)

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Has worked so very hard
That he has got a "pard"
To help him with his bees,
And if you wish to please—

Yourself and us, send for a circular giving particulars regarding our fine Italian

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Prices for queens this season will be as follows:

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Untested	$1.00	$2 25
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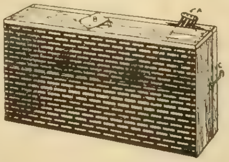

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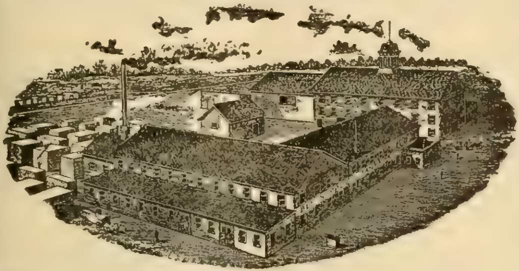

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Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

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Working Wax into Foundation for Cash a Specialty.

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New 64-page catalog for the New Year now ready

For You.

Twenty successful years manufacturing Bee-supplies and raising Italian Bees and Queens.

J. M. Jenkins,
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I. J. STRINGHAM,
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furnishes everything in the line of Bee-keepers' Supplies. Italian Bees and Honey in season.

I have been in the supply business 14 years, and have kept bees 22 years. Have studied the East as a honey-producing country; know the honey-producers in each section, hence know the appliances best adapted, and furnish them. Our advice is yours for the asking. Catalog free.

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H. M. ARND, Manager.

Headquarters for

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Having decided to add Bee-Keepers' Supplies to our honey-business, we have arranged with the well-known **G. B. LEWIS CO.** to handle their full line of **Popular Beeware** in Chicago. We will sell at their regular prices.

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☞ Beeswax taken in exchange for Bee-Supplies, or for Cash.

BINGHAM Original Direct Draft CLEAN **Bee Smokers**

4 Largest Sizes Soot Burning

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Never Go Out

And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder

Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS Have These Latest Improvements.

OUR SPECIALTIES

Cary Simplicity Hives and Supers;
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Root's Sections, Weed Process Foundation,
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Bees and Queens in their Season;
Thirty-two-page Catalog Free.

W. W. Cary & Son, Lyonsville, Mass.

FREE! A Subscription to Bee Journal One Year

with order of $5.00 or over. Cheapest place in the United States to buy your supplies.

One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.

Wholesale and retail. Send for free list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.* :: :: :: :: ::

The new edition of "A B C of Bee Culture" is now here, and is ready for immediate distribution. :: :: ::

I occupy 4892 square feet of floor space, which is constantly occupied with a stock of goods. Since January 1st the Root Company have sent me two full carloads of supplies and eleven local shipments with which to complete rush orders. These nice clean goods are stacked to the ceiling, and are ready for immediate distribution. Keep right on sending in your orders as I am prepared to handle still more business with my usual promptness. Other carloads are coming.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

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Perfect Goods!

Low Prices!

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The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

SPECIAL NOTICES
Special Notices
By Our Business Manager

Our request for back numbers of GLEANINGS, made in our Feb. 16th issue, brought us so many offers that we have been able to use only a small part of them so far, and in many cases we have been unable to write each one direct regarding the same. We trust this notice will serve as an answer to each of the friends who have kindly offered to supply numbers of which we are in need. Do not send us any more unless requested by letter.

BUSINESS OUTLOOK.

Several weeks ago trade was rather quiet compared with recent years; but there is a marked improvement in the past two weeks, so that we are now some 12 or 15 cars behind our orders. We have a very large stock of staple goods, and in better condition than ever before at this season to take care of orders promptly. The outlook in many directions is quite promising for a heavy sale of supplies.

NEW SUPER-SPRINGS.

After our notice about new super-springs, with hook on both ends, was inserted in last issue, we learned that, through an error at the factory, the first 100,000 were made with hook at one end only, and we are obliged to fill orders with these for several weeks till a further supply, hooked at both ends, can be made. There is no practical difference, only with the single-hooked spring you must see that the hook-end is up when inserted, so that when you come to remove them again you can easily do so by catching the hook. When hooked both ends, no attention need be given to the matter of which end up when inserting.

NEW ROOT REVERSIBLE EXTRACTOR.

On another page of this issue is shown and described the new Root automatic reversing honey-extractor in four-frame size, also eight-frame with gasoline-motor for driving the same. All orders for four-frame Cowan or larger will befilled with the Root automatic at the regular price for the Cowan. We have a similar device for reversing the two-frame machine, but it is not quite as simple, owing to the fact that one pocket must be swung over ahead of the other. Because of this, one not familiar with its operation is liable to get it in such position that it will not operate. We have, therefore, decided that, for the present, we will not recommend the two-frame Root automatic reversing. When desired we can supply it at $2.00 extra over the price of the regular two-frame Cowan. It is equipped with a brake, which is not supplied on the two-frame Cowan. We have had a number of calls for the reversing attachment to be applied to old machines. This can not be done except in a machine-shop where the work is thoroughly understood, and therefore it is not practicable to send out these parts for old machines.

The eight-frame L. size, No. 40, has a can 40 inches in diameter; weight, boxed complete, 250 lbs. Price $40. Price of motor, with attachments complete, $60; weight, boxed, 100 lbs.

Special Notices by A. I. Root.

THE GINSENG BUSINESS; FAKE ADVERTISING, ETC.

In order to push their sales, some of the ginseng men have quoted A. I. Root as recommending it as a rural industry. As a consequence, it has kept me busy in print and by private correspondence to refute such statements; and I have frequently added that we are so well satisfied (with the rest of the agricultural periodicals) that it is not best to encourage the growing of ginseng we have refused their advertisements and declined to sell their books. The letter below is a sample of the kind words we get for acting conscientiously.

> Mr. A. J Root:—Many thanks for your reply touching the nature of ginseng. It is refreshing to meet occasionally upon the highways of life those who refuse to slake their financial thirst at the tempting trough of questionable investments. JAMES SELLER.
>
> San Jose, Cal., March 5.

"WHOSO DRINKETH OF THE WATER I SHALL GIVE HIM."

After Our Homes for this issue was in print I clipped the following from the Chicago *Advance* in regard to the recent revivals in Los Angeles, Cal.:

> The campaign has changed the lives of many more than would be indicated by the signing of over 4200 cards of inquiry. It has been said that the saloon under a single brewery reported a decrease of earning in $4000 in the first week. Men and women who had given themselves up as the hopeless bond-servants of sin found God had not given them up, and that Christ was able to save.

There are a few people who ask what good revivals do. Any thing that cuts off the receipts of a single saloon to the extent of $4000 a week is certainly good, and I should say it must come from God.

BASSWOOD-TREES BY MAIL OR EXPRESS.

Now is the time to put them out; and as a rule we should prefer spring planting to fall planting. Almost any thing will grow if it is given any kind of chance in the spring; and basswood, or linden, as it is sometimes called, is one of the easiest trees to make grow that is known, and it is one of the most rapid growers. We have a nice lot grown in our own nursery, and they are not taken out of the ground until they are ready to be shipped. Trees taken from cultivated ground are worth ever so much more than trees of the same age taken from the forest. In fact, we have learned by experience that trees collected in the woods should never be shipped to customers until they have grown at least one year in the open ground. The transition from the forest to the open field is too much for any tree without the special care and protection that can be given only in the nursery rows. They will be ready to ship as soon as frost is out of the ground, at the following prices:

One foot and under	each 5c;	ten, 30c;	100, $2.00
The above by mail	each 8c;	ten, 35c;	100, 2.25
One to five feet	each 10c;	ten, 75c;	100, 5.00

A leaflet on growing basswood is sent free on application.

Convention Notices.

The Western Illinois Bee-keepers' Association will hold their spring meeting at Galesburg, on April 5, all day, in the county court room. Our meetings are more interesting each time, and with the aid of bee-keepers in this vicinity we will continue having profitable meetings, and all who are interested in bee-keeping are invited to come and help and be helped.

Galesburg, Ills. E. D. WOODS, Sec.

Of late, up-to-date apiarists have been making thorough tests of the results obtained by using a ready roofing for covering hives. The reports from all who have tried this are very commendable to the ready roofings, and we do not hesitate in recommending the plan to others who are desirous of getting warm hives at less cost than the ordinary hives used to-day.

Paroid and Neponset have been the roofings called to our attention, and we understand the manufacturers have a special report from a professional bee-raiser, giving advantage desired from the use of Paroid and Neponset.

PEACH and other fruit trees at wholesale prices. Circular free.
R. S. Johnston, Box 43, Stockley, Del.

ENYART'S COMB-FOUNDATION GAUGE gauges 18 different shapes of starters. Easy to cut 100 starters per minute. Circular free.
J. E. ENYART & SON, McFALL, Mo.

WANTED.—To send you two bee-journals for the price of one. Gleanings and the Rural Bee-Keeper, both for $1. Address **W. H. PUTNAM, River Falls, Wis**

QUIRIN-THE-QUEEN-BREEDER

OF BELLEVUE, OHIO.

Is now booking orders for bees and queens. Our northern-bred Italians are extraordinarily hardy, having wintered on summer stands for the past eighteen years right near bleak Lake Erie; queens are prolific; bees gentle and energetic workers. Safe delivery and satisfaction guaranteed. Special prices in lots of fifty or more. Free circular and testimonials. Estab'd 1888.

Prices before July 1st.	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	....	....
Straight 5-band breeders	6 00	....	....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	....
4 frs. brood, 4 frs. foundation	5 00	25 00	....

BIG IMPROVEMENTS

WE WISH to say to our bee-keeping friends and customers, that we are now making big improvements in our queen-rearing yards. Our queen-rearing capacity will be twice as large this season as it was last, as the demand for our queens has increased so that we have now employed another expert queen-rearer for this season, and have added 500 more full colonies of bees to our apiaries. And our motto is going to be more queens and better queens. We are now booking orders for spring delivery. Why not let us book yours for any amount you may want in the way of queens and bees. No matter how large or small, we will be able to fill your orders promptly from one queen to 1000, and from one colony of bees to a carload.

Untested queens from March 1st to November 1st, 75 cts. each; $4.25 for six, or $8.00 per dozen; all other months, 25 cts. extra on each queen. Tested, from $1.50 to $2.50. Breeders, the very best, $5.00. One, two, and three frame nuclei and full colonies furnished on short notice. Prices cheap on application.

We can sell you dovetailed bee-hives made of yellow pine at about half the price of white-pine goods. Get our prices. Quality and workmanship guaranteed. Send for catalog describing the six different races we breed.

THE BEE & HONEY CO., W. Atchley, Prop., Beeville, Bee Co., Tex.

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LAWS' ITALIAN AND HOLY LAND QUEENS.

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

Dear Sir:—Inclosed find $1.50 for two Golden queens. The queen you sent me last year built up a rousing colony, and is occupying 30 Danz. frames, and so far has not attempted to swarm. A. D. TAYLOR.

Memphis, Tenn., July 15, 1904.

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

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You will see I have moved. I am prepared to furnish queens by return mail. I have 100 nuclei wintered over, and am in the best fix to fill all orders in rotation of any queen-breeder in the South. I rear five-banded and three-banded only. Tested, for March and April, $1.25; untested, 85c. Give my bees a chance to please you.

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Now ready, at $1.00 each; tested, $1.50; golden stock.

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Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

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is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

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$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

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Volume XXXIII APRIL 1, 1905 Number 7

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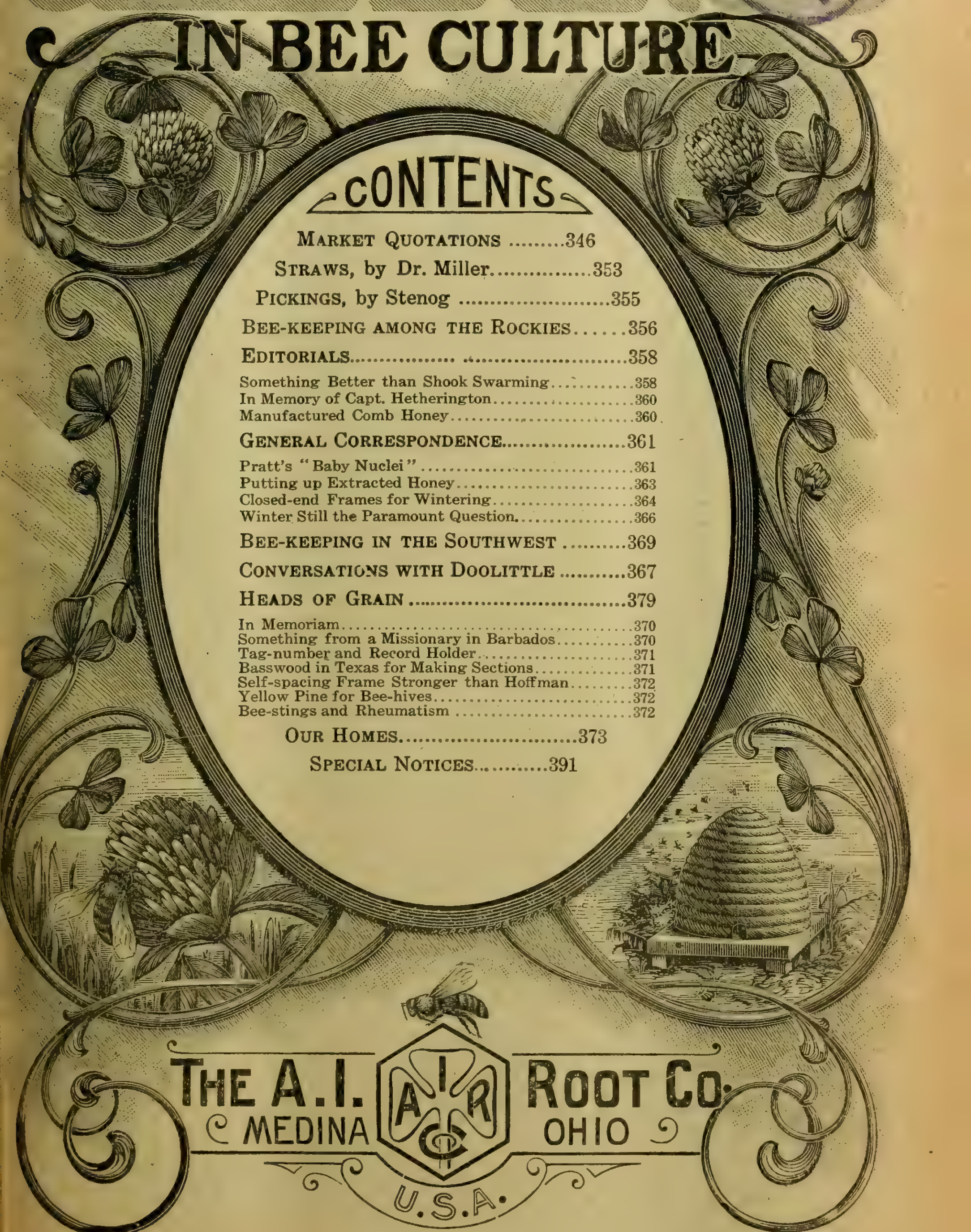

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A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive. Write for catalog. Root's Goods at Root's Prices.

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The goods we sell are made in Ohio. You live in Michigan,

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I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

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Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—As the season advances the call for honey is decreasing, and the market at the present time is dull—some few sales. We quote fancy white, 13@14; No. 1, 11@12; amber, 11. Extracted, white, 6½@7; amber, 5½@6. Beeswax, 28. We are producers of honey and do not handle on commission. WM. A. SELSER,
March 22. 10 Vine St., Philadelphia, Pa.

TOLEDO.—The demand for comb honey is quiet at this writing, and the prices same as last quotation. We do not look for a large demand for this year. We quote fancy white in non-drip shipping-cases at 12½@13; No. 1, 11½@12; dark, 7½@9. Extracted, in barrels, white clover, 6@6½—cans, 7½@8; dark amber, 5@6. Beeswax, 25@28. GRIGGS BROTHERS,
March 20. 521 Monroe St., Toledo, Ohio.

TORONTO.—We have not reported the honey market for some time, as there is practically no change. What we said in the first part of the season regarding the honey market was not far from the truth. We said then that we thought bee-keepers would do well to sell at the price honey was going then, instead of holding for higher prices. The higher prices have never been realized. We paid as much as 8 cts. for No. 1 clover honey in the fall, and have recently bought by the barrel of 700 lbs. at 7 cts. Comb honey remains unchanged at $1.50@$2.00 per dozen.
March 28. E. GRAINGER & Co., Toronto, Ont.

BUFFALO.—Honey is selling as well as usual at this time of the year. Prices hold about steady on the best white stock. On dark or No. 2 or 3 white the prices are cut to effect sales. We quote fancy white comb, 13@14; A No. 1, 13@13½; No. 1, 12½@13; No. 2, 10@11; No. 3, 9@10; dark, 9@10. Extracted, white, 6@6½; amber, 5½@6; dark, 5@5½. Beeswax, 26@28.
March 18. W. C. TOWNSEND, Buffalo, N. Y.

KANSAS CITY.—The honey market shows no improvement. The tendency now is for lower market before the close of the season. Fancy white comb honey is selling here at $2.00 and down as low as $1.25 a case, and the demand is limited. Extracted is selling at about the same prices. C. C. CLEMONS & Co.,
March 22. Kansas City, Mo.

ST. LOUIS.—Our honey market is in the same condition as reported last, and we quote as follows: fancy white comb honey, 13½@14; A No. 1, 11@12; No. 1, 9@11. Choice extracted white clover or Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5@5½; Southern in barrels, 4¾@5. Beeswax, 28½.
R. HARTMANN & Co.,
March 20. 14 So. Second St., St. Louis, Mo.

SCHENECTADY.—Comb honey is selling quite freely at 13@13½ for fancy; No. 1, 11@12; buckwheat, 10@11. The prices and demand for the coming month will be governed somewhat by the maple sugar and syrup production, as that usually takes preference. Extracted light, 6½@7; dark, 6@6½. CHAS. MCCULLOCH,
March 20. Schenectady, N. Y.

CHICAGO.—Business continues in the small lines, but there is no jobbing of lots. The free buyer has disappeared; perhaps he will return with the robin—certainly a welcome greater than has been extended any returning Russian would be his. Prices are unchanged from last figures in comb and extracted honey and beeswax.
R. A. BURNETT & Co.,
March 20. 199 South Water St., Chicago, Ill.

CINCINNATI.—The comb-honey market has been a drag the last month—this caused the holders to offer extra inducements in prices. Prices obtained are as follows: No. 1 fancy water-white comb, 12@13; No. 2, 10½@11½. Extracted is sold as follows: White clover, in barrels, 6½—in cans, 7½@8; amber, in barrels, 5¼@5½—in cans, 6@6½. Beeswax, 27.
C. H. W. WEBER,
March 20. 2146-8 Central Ave., Cincinnati, O.

SAN FRANCISCO.—Honey, comb, 10@12. Extracted, water white, 7; light amber, 6; dark amber, 5. Beeswax, 28@29. ERNEST SCHAEFFLE,
March 14. Murphys, Cal.

FOR SALE.—White honey (mostly basswood) in five-gallon cans, at 7 cts. a pound.
C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—Twenty-eight 60-lb. cans of beautiful raspberry extracted honey; white as clover, and equal as to flavor; sealed before extracting; crated two cans to the crate to ship; 7¼ cts. on car; sample free.
E. D. TOWNSEND, Remus, Mich.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED—Comb and extracted honey. State price, kind, and quantity. R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

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COMPLETE STOCK OF BEE SUPPLIES—LEWIS CO.'S AT FACTORY PRICES
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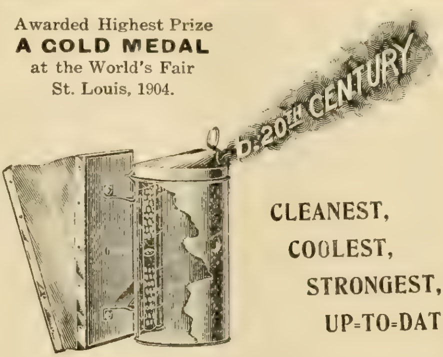

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4 | Stepping Heavenward** 18

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5 | British Bee-keeper's Guide-book, by Thomas William Cowan, England § 95
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This is a story of the life of the bee, told in very interesting style—how it lives, gathers honey, and all about it. While clothing the general subject with an air of poetry, it seems to be entirely within the limits of known facts while attempting to deal with them. We believe it will give all thoughtful bee-keepers a greater liking for their business to read it. Probbaly it has more to do with the curious traditions connected with bees than any other book of the kind.

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| Canary Birds, paper 50
2 | Celery for Profit, by T. Greiner** 25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15 | Draining for Profit and Health, Warring 85

8 | Domestic Economy, by I. H. Mayer, M. D.** ... 30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10 | Fruit Harvesting, Storing, Marketing, etc 75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexpert in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, $1.00.

| Farming with Green Manures, postpaid** 90

This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7 | Farm, Gardening, and Seed-growing** 90

10 | Fuller's Grape Culturist ** 1 15

5 | Garden and Farm Topics, Henderson** 60

12 | Gardening for Pleasure, Henderson* 1 10

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price $2.00.)

12 | Gardening for Profit** 1 10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts (Retail price $2.00.)

8 | Gardening for Young and Old, Harris**.......... 90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3 | Grasses and Clovers, with Notes on Forage Plants.......... 20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft** ... 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**........1 15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is $1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper*.......... 20
5 | Gregory on Squashes, paper*.......... 20
5 | Gregory on Onions, paper*.......... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen.......... 05
5 | Home Pork-making; 125 pages, illustrated...... 40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**..........1 35

By T. Greiner. Those who are interested in hot-beds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price $2.00.

| How we Made the Old Farm Pay—A Fruit-book, Green 10

interest that characterize its author, T. Greiner.

10 | Irrigation for the Farm, Garden, and Orchard* 85

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush**.......... 25
4 | Peabody's Webster's Dictionary.......... 10

Over 30,000 words and 250 illustrations.

5 | Manures; How to Make and How to Use Them; in paper covers.......... 30
6 | The same in cloth covers.......... 65
| Nut Culturist, postpaid..........1 25

3 | Onions for Profit**.......... 40

Fully up to the times, and includes both the old onion culture and the new method. The book is fully illustrated, and written with all the enthusiasm and Even if one is not particularly interested in the business, almost any person who picks up Greiner's books will like to read them through.

10 | Our Farming, by T. B. Terry**.......... 75

In which he tells "how we have made a run-down farm bring both profit and pleasure."

If ordered by express or freight with other goods, 10c less.

8 | Practical Floriculture, Henderson.*..........1 10

10 | Profits in Poultry.*.......... 75
10 | Small-Fruit Culturist, Fuller.......... 75
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown.......... 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

2 | Sweet Potatoes; Forty Years' Experience with. By Waldo F. Brown **.......... 08

This little book, by a veteran teacher at our farmers' institutes, ought to be worth many times the price to everybody who grows even a few sweet potatoes in the garden. It also gives full particulars in regard to handling and keeping this potato, which is difficult to keep unless you know just how.

10 | Talks on Manures*..........1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

5 | The New Rhubarb Culture**.......... 40

Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

2 | Treatise on the Horse and his Diseases....... 5
5 | Tile Drainage, by W. I. Chamberlain......... 35

Fully illustrated, containing every thing of importance clear up to the present date.

The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture.......... 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer**...... 20
3 | Vegetables in the Open Air*.......... 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle.......... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects for the Microscope**.. 47
8 | What to Do, and How to be Happy while Doing It.......... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers.......... 40

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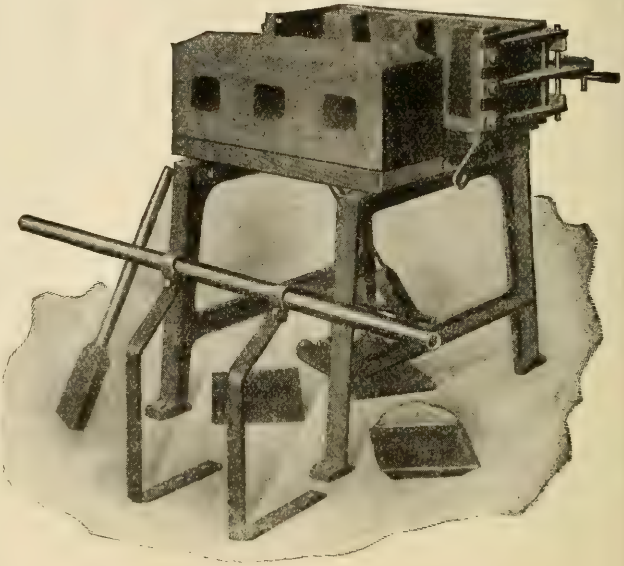

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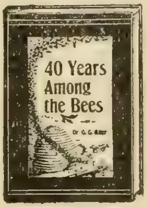

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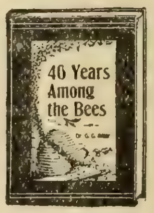

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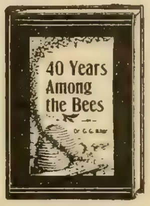

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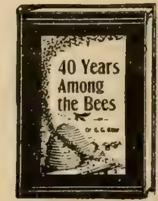

☞ The American Bee Journal is in its 45th year.

A GOOD NUMBER!

I do my best to make each issue of the REVIEW a good one, but, in spite of this, there is occasionally a number that, to me, seems unusually valuable. The March number is one of these fortunate issues.

I have already mentioned the article by H. G. Sibbald, describing a system that is away ahead of shook-swarming, and one by E. D. Townsend telling how to make a cheap but excellent wax-press, and how to use it easily and so effectually as to get the last ounce of wax, all in the best possible condition.

Following the foregoing is an article by M. A. Gill on "The Requirements for Successful, Extensive Bee-keeping." From a wealth of experience he gives inestimable advice to the prospective specialist.

Much has been written concerning farm bee-keeping, and the March REVIEW has a three-page article from a genuine farmer bee-keeper, giving *his* side of the question. If you are a farmer bee-keeper, or aspire to become one, you certainly ought to read this article by Fred A. Krause, of Wisconsin.

Send ten cents for a copy of this issue, and with it will be sent a special offer to new subscribers—the best of several that the REVIEW has made in the last few months—the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

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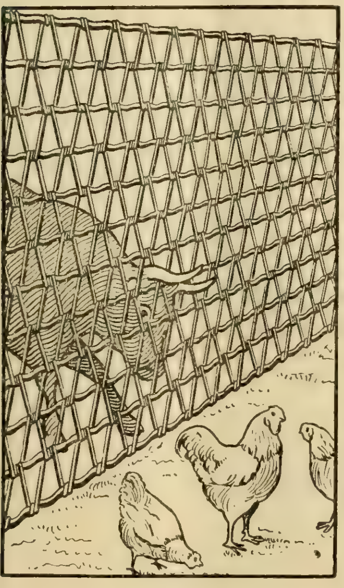

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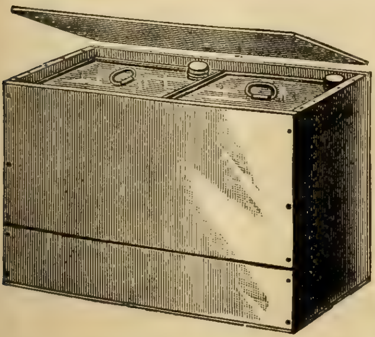

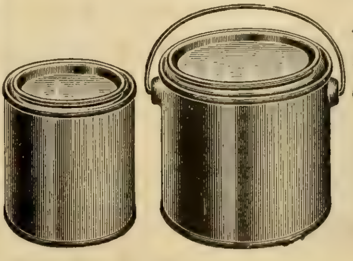

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

Illustrated Semi-Monthly

Published by THE A. I. ROOT CO.
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Vol. XXXIII. APR. 1, 1905. No 7

Stray Straws

By Dr. C. C. Miller.

BECAUSE of the difficulty of finding sale for it, *Le Rucher Belge* advises against the production of section honey in Belgium. Besides, bees sometimes swarm rather than to work in sections.

THE MOST TRYING times for cellared bees is when damp muggy weather comes with a rise of temperature. Seems ever so much worse than bright sunshine with same temperature. [Right you are.—ED.]

THE PROSPECT seems to be good for a big crop all over; but with honey a drug on the market, and a lot more dumped upon it, where shall we be at? [I expect to see the honey market materially toned up.—ED.]

WALTER S. POUDER gives some good things to think about, p. 301; but I think if he were on the Board of Directors for a few years he'd hardly want one for each State. In my judgment a mistake was made when the number was increased to 12.

TAKE TWO MEN, A and B, alike in every respect except that A is well nourished and B is poorly nourished. Both succumb to cold at the same moment. If taken in time, both may be revived. At the last moment, when it is possible to resuscitate him, the proper means are used to restore A, and he lives. The same means are used at the same moment to restore B, but he dies. He would have lived if he had been as well fed as A. We don't say he starved to death; we say he froze to death. Why not talk the same way about bees?

"THERE IS ONLY one cellar in a hundred that will hold such uniformity of temperature, irrespective of conditions outside," as Doolittle's, p. 292. Better make it one in three or four hundred. [Yes, and I am not sure but we might make it one in a thousand. One could not, therefore, follow Doolittle safely on this point unless he could have exactly his conditions in every respect. We have two outyard cellars, and can not begin to get the results with these that we can with the one under the machine-shop, where the great bulk of our bees are wintered.—ED.]

FURTHER EXPERIENCE makes me less afraid to have bees fly with snow on the ground, *provided* it be not fresh and soft. March 16 I took out 20 colonies for a flight, thermometer 55, ground covered with snow, and scarcely a bee was to be found on the snow; but quite a few were found where water stood on the road in the afternoon. [At one time it would be perfectly safe to let bees fly out with snow on the ground, and at other times it would result in a heavy loss of bees. As explained in a previous issue one can not rely wholly on the thermometer.—ED.]

"I THINK we all agree . . . that winter flights are probably unnecessary in cold localities when the temperature of the cellar can be *maintained* at a *uniform* point, and where it does not warm up much if any until it is about time to put the bees out permanently." Beg pardon. I think that a whole lot of us do not agree. Those are the localities where confinement is long and flights much needed. Besides, not one in fifty can hold uniform temperature. But, although we may think the flight needed, we are in doubt as to its advisability because uncertain as to its after-effects. [See footnote to another Straw on this subject.—ED.]

"ONE AT A TIME is the law of the loose or the staple-spaced frame," says Geo. W. Phillipps, p. 289. True for the loose, but I don't understand why it should be for the staple-spaced. I know I can take out just as many nail-spaced frames at a time as

Hoffmans. [My experience with the staple spacer was a good deal the same as that of Mr. Phillips. While I could handle *en masse* two or three frames I had to be much more careful, pressing the bunch of frames together for fear that one would slip away. With the Hoffman frames, propolis attachments will hold them together without any difficulty. It is right here that propolis is an aid rather than a hindrance.—Ed.]

"If a new empty super is put below one nearly filled, the upper one is likely to be left unfinished," p. 291. I'd rather suspect an error in Huber's notes than to believe an unqualified statement of that kind should pass unchallenged in a Michigan State convention. I've done that thing thousands of times, and the work went right on in the upper super. If done when the flow is letting up, it may discourage work above; but even in that case I've known bees to keep on with work above, leaving the foundation untouched below. [While I believe that, generally speaking, you are right, doctor, on this point, yet I have had colonies do exactly the thing reported in the quotation. Every thing depends on how near we are to the end of the honey-flow. This is a matter that hinges somewhat on locality.—Ed.]

Ye editor thinks Mr. Stewart states the exact position held by Editor Abbott with regard to bees freezing and starving, p. 303. Mr. Stewart holds that, when a single bee freezes, it does not die from freezing, but if not relieved soon enough it will die from starvation while still in a frozen condition. I think you are warranted, Mr. Editor, in believing the two agree if you have not carefully noted Mr. Abbott's later and fuller statement. He made a general statement something like saying, "Bees never freeze to death; they starve;" and that agrees with Mr. Stewart's view; but recently he has explained more fully, and, as I understand him, he believes that a full colony of bees never freezes to death, but a smaller number may. I think Mr. Abbott is correct. A full colony of bees in any climate where bees are kept does not freeze to death—indeed, *can not* so long as it has honey accessible, any more than a man can freeze to death in a house where he keeps stuffing fuel into a fire. But when the number of bees is too small, the fire can not be kept going, and the bees freeze to death.

"The shock of taking bees out of the cellar is an objection to cellar-wintering," p. 291. What does that mean? If it means the excitement of flight, don't outdoor bees have the same shock? [Huber says his report was very much condensed, and he probably omitted some modifying conditions. But there is a shock sometimes. A warm day is not a favorable one for taking all the bees out of the cellar. They get mixed up in their flight, and the weak ones are liable to be robbed if there are any outdoor bees prepared to pounce on them unprepared. In our experience it is the outdoor-wintered bees that are liable to give trouble to the indoor weak colonies just put out. These latter for a short time scarcely realize that they are outdoors. In two cases this spring we had some weak colonies that were being badly robbed just because they had not discovered they were outside, and therefore needed to defend their entrance. Of course, the veterans know that bees should ordinarily be set out in the cool of the morning or evening previous—better the latter—in order that they may adjust themselves to their new condition.—Ed.]

The theory, page 303, that "bees freeze first and then starve," if it proves true, may be put to very profitable use. A bee entirely motionless must take many times as long to starve as when in an active condition. So put nuclei or even single queens in cold storage, after being well fed, and leave them till warm weather. [I am not sure but this is one of your unlabeled jokes. At all events, a good deal will depend on how cold the storage was. I would not think it practicable to go below 45, and then we should have conditions exactly as in an ordinary cellar. But it is not yet explained as to how bees can be frozen so stiff as to be crisp, and remain in that condition, no one knows how many days, and still be revived. Last summer we laid cages of bees on cakes of ice 12, 24, 36, 48, and even 72 hours. While they were frozen stiff they apparently showed no signs of life while in that condition; but in each case the warm sun would revive them so they would be as lively as ever. The experiments were not repeated; but this summer I hope to test the matter for a longer freezing. But I believe there is a point that might vary with different bees, when they will die from the prolonged chilling or from want of food. Whether it is starvation or cold that finally kills remains to be proven.—Ed.]

I'm afraid, Mr. Editor, that you would desert the ground you occupy, p. 283, if you should spend a few winters further north. Bees need a flight when their intestines are loaded, whether that loading be caused by the uneasiness of a heightened temperature or by long-protracted confinement in an even temperature. You say when the temperature outside would not permit of flights from fall to spring there is not much need of such flights." Remember that, in a place of that kind, the confinement is longer, and it's the *long* confinement that's chiefly responsible for loaded intestines. If you had seen the way my bees spotted the ground when taken out in March, you'd hardly say "there is not much need of such flights." The only question is, whether the after-effects will counterbalance the good. [I accept in part your amendments. Now let me try again. When the temperature outside will not permit of flights from fall till spring, and the temperature inside with a dry atmosphere can be kept uniform, as in the case of Mr. Doolittle's cellar, then there is not much need of midwinter flights. There! does that suit you better? If I remember correctly you are not able to control the temperature—it rises and falls. On the up grade the bees are stirred to activity, with the result that they overload their intestines. You aver that a cleansing flight would be a good thing if you could be sure there were no bad after-effects. If the bees were returned the same day, after a good flight, on a safe-flying day, I do not see how there could be any bad effects.—ED.]

Pickings from Our Neighbors' Fields

By "Stenog."

Mr. G. A. Deadman, of Brussels, Ont., wishes to make the following corrections in regard to what he said concerning the little tin honey-boxes. The first mistake was due entirely to Mr. Deadman's manner of interlining "1 Dozen" with a leadpencil; but the other error was ours. He says:

> In my note on page 315, you have me say regarding the de luxe tin boxes for comb honey, "Make them to hold not more than 11 oz. It should be one dozen; and a little further on it should be, "one to hold six sections would help to sell them in this quantity," not six dozen as you have it. These errors make the article unintelligible. Possibly fault of my typewriter.

* * *

In the *American Bee Journal* for March 23, Mr. E. E. Hasty has the following in regard to every man making his own hives and those of his neighbors. It is very seldom that any thing is put more plainly, and, withal, more pleasantly, than this:

> Ah, dear Boss, don't you forget to remember that this whole nation (except the culprits) is tender and excited on the subject of trusts. If you ever seem to favor their side but a little there will instanter be lots of bees around your bonnet, if not in it. If you were a guest in the Russian royal family you would not argue very much in favor of the bomb-throwers—and you are in a somewhat similar fix now. The cabinet-maker has already "dressed you down" for saying that hives must be made with more accurate measurements than cabinet-makers and carpenters use—and here comes your friend and mentor to dress you some more for the logic in your first paragraph. If a man makes his own hives with profit it most decidedly *doesn't* follow that he can make for others with still more profit. He makes his own hives with his own hands; but if he wishes to enlarge in that line the vexatious question of hired help comes in and knocks every thing endwise.

* * *

While the *American Bee Journal* is always a welcome visitor at our desk, the visit of the editor himself, Mr. G. W. York, is a double cause of congratulation at the Home of the Honey-bees. He reached here on the 25th of March, returning the same day. I wish all bee-keepers could know Mr. York. He is a man of strong personality, endowed by nature with a peculiar faculty for making friends and yet retaining the respect of an opponent. He is enthusiastically on the side of all that counts for what is best; is a radical temperance advocate, and, in short, such a man as is greatly needed in a city like Chicago. Mr. York is an Ohio boy by birth, having been born in Stark Co. in 1862. Bee-keepers visiting him in Chicago will receive a very friendly welcome.

* * *

A friend in an eastern city offers me some very good suggestions in regard to the general belief that comb honey is adulterated. He says, in substance, that the general public mean one thing by comb honey while we mean another. The common conception of comb honey is what bee-keepers would term chunk or broken honey, generally kept in pans, the honey running loose among the combs. It is hard to see why this could not be mixed with glucose as well as if the comb were absent. But bee-keepers restrict their idea of comb honey to that in sections. Newspapers are rapidly admitting that honey in *unbroken* combs is necessarily genuine. Instead of calling the mashed-up stuff "honey in the comb" he would call it "comb in the honey." This is well worth thinking about.

* * *

The oldest records we have of the use of honey as food come from Palestine, the land of the Bible. It was a staple article when Joseph was sold into Egypt, and references to it in the Bible are numerous. Even to-day the sales of honey are noticeably greater in our large cities during Hebrew holidays, as the chosen people use large quantities of it. Its keeping qualities suggest the manna of old, and many other ideas combine to make it an object of special regard to devout Jews. The following lines, copied from the *British Bee Journal*, may prove to be interesting in this connection, although the matter first appeared in a French journal, the *Bee-keepers' Bulletin of the Somme*, to put it in English. It will be noticed that the Arabs have made no improvement in the handling of bees since the year 1. Our older readers will remember Mr. Baldensperger as a voluminous writer for GLEANINGS.

> Up to 1875, bees were in a wild state in Palestine, as swarms settled in cavities of rocks and hollow trees. The natives used to look for them and destroy them for the honey, which has always been a staple article of food among the Arabs. A few of the more intelligent had hives in the form of cylinders made of clay fine cut straw, and the bees in these were destroyed to obtain the honey. Things changed in 1875, when a European family (the Baldenspergers, of Alsace) commenced bee-keeping in movable-comb hives. Many of the natives have adopted this system, but have not yet obtained as good results as the Europeans, either in quantity or in quality.

* * *

Some time ago a correspondent of GLEANINGS expressed a desire to know how to detect adulteration in beeswax. As the letter in question was on business matters, and not designed for publication, no answer was given in print to this particular request. Thinking that he and many others may still be interested in this matter, I copy a few lines from the *British Bee Journal*, which seem to cover the ground very well.

> A small piece of wax placed in the mouth and chewed should not adhere to the teeth, or become pasty, but

gradually disintegrate into small fragments, and be devoid of any special savor. This test is not sufficient if the quantity of the adulterant is small, in which case the specific weight should be ascertained.

Prepare in a tumbler a mixture of alcohol and water of sufficient density to allow a flat piece of wax of known purity to float on the surface, so that the upper surface of the wax is level with the liquid. A small sample of suspected wax is then melted to get rid of all traces of air, and then placed in the liquid. If it sinks or projects above the surface it is certainly adulterated.

Sometimes adulterants heavier and lighter than pure wax are used, so that when mixed in proper proportions the density of pure wax is obtained. In such a case the following additional tests should be made:

Put a piece of the suspected wax, the size of a small nut, into a test-tube, half fill with spirits of turpentine, and carefully warm over the flame of a spirit-lamp. If the solution is cloudy, or a deposit is thrown down, the solution is not complete and the wax is adulterated, for spirits of turpentine completely dissolves pure beeswax.

After this test, a piece of the same wax is placed in a test-tube half filled with alcohol and brought to the boiling point.

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

When melting beeswax on a stove, especially if there is any water in the vessel in which it is being melted, do not go away and leave it for even a minute. If you must go away, set the wax off the fire until you get back. The fire may be hotter than you think, or something may make you stay away longer than you expected to. A pan of wax boiling over on a hot stove may make a serious blaze. Last year neglect of this precaution cost one bee-keeper, in this valley, his dwelling-house and another a good honey-house with contents, including about a ton of honey.

PAPER HONEY-COMB.

Anent the manufactured-comb-honey canard, a St. Louis lawyer once told me that he had bought honey in that market, the combs of which were made of paper. He fully believed this, and I do not know that I succeeded in convincing him of its impossibility or improbability. He had presented the honey to a lady, and had accepted her report on it, though he had not eaten the honey himself, so I could not be sure on what grounds the verdict was based, though probably the trouble was that the comb was tough, due to having been built the season before, or to a "fishbone" base, caused by old or too heavy foundation.

HAULING BEES WITHOUT CLOSING THE ENTRANCES.

The matter of hauling bees without closing the entrances has been mentioned once or twice in GLEANINGS. I once bought a lot of bees sixteen miles from home. When two or three miles on the way back with them, after having passed over some pretty rough roads I noticed that some of the old hives had come open to such an extent that the bees were beginning to come out and cluster on the outside of the hives. I was alone, the team was full of life, and entirely unused to bees; and for a time I thought I had a large-sized piece of trouble on my hands. After a little deliberation I concluded to let them alone, and I drove all the way home without a particle of trouble from them. They were black bees. Hybrids might have behaved differently. Probably, though, any bees that had been confined for a time while being jounced over rough roads would be perfectly gentle thereafter. I should not consider it safe though to start out with open entrances, though a thorough smoking might make it all right.

SUBSTITUTES FOR POLLEN.

If bees are not gathering natural pollen already in your neighborhood you can probably help them a great deal by feeding something to take its place. In many parts of the West there are no natural sources of pollen very early in the season, and brood-rearing can not be carried on as well as it might because of the lack of it. In such places a little meal fed to the bees will greatly encourage brood-rearing. If you use bran for cow-feed this is the simplest and cheapest thing for the bees. Let them work it over before you give it to the cow. Place it in shallow boxes slightly inclined. When the bees have worked it down to the lower end, reverse the box. If you do not feed bran, perhaps you can get something ground for them, or you can use cheap flour, mixing it with a little bran so that they can handle it easier. Of course your neighbors' bees will get some of it, if they are as close as is usual here, but perhaps you can induce them to feed too.

HIBERNATION OF BEES.

I had supposed that the hibernation theory died a natural death long ago; but L. R. Freeman, editor of the *Northwest Farm and Home*, made the following statements in an address at a horticultural institute, published in the *Western Bee Journal*. "Bees consume no honey during the winter in a climate where it is steadily cold. This I have ascertained by weighing the hives in the fall, and again in the spring. There would be a slight diminution in weight, which is accounted for by evaporation and by the death of bees. . . In a climate where the cold weather is uniform, a bee hibernates as much as does a hornet or a wasp." Evidently the proper thing to do is to put our bees into cold storage to save the twenty to thirty pounds of honey that is usually required to winter a colony of bees. In the same address we are told of a bee-keeper making a gain of $1250 "about as cheaply as if he had found it." What wonderful things about bees we sometimes learn from the agricultural and horticultural writers!

BRICK HONEY.

The success attained by The A. I. Root Co. in marketing granulated honey in small packages marks an era in the development of the honey market. This method of cutting honey, that has granulated in bulk, into small portions of uniform size makes it possible to market a small quantity of extracted honey at but little greater cost for the package, proportionately, than is needed for the larger quantity. In other words the cost of the package, which has heretofore been the great drawback to the sale of extracted honey in small quantities, is practically eliminated. The goal which I had in view when I made my first experiments, years ago, has been almost reached, though in a different way, from that which I was trying to follow. It not only permits the marketing of honey in a new and attractive form for those who are willing to pay an extra price for a fancy article, but it also caters to those who, with more moderate purse, want the worth of their money, yet are accustomed to buy only in small quantities. More than all this, I believe it permits the exploiting of the great confectionery field. I believe we shall not have attained the greatest usefulness of this idea until the children and other candy-users of this broad land are able to buy five cents' worth, or even a cent's worth of honey at a time. If we can make this practical, and I see no reason why we should not, a new market is opened for immense quantities of honey.

* * *

EDUCATING THE PUBLIC.

What is the matter with the honey market this year? During the past season there does not seem to have been any territory where an unusually large crop was secured. There are not very many localities where the honey yield could even be classed as good. In very many places, including some of the best honey-producing territory, the yield ranged from poor to very poor. Yet if we look over the market quotations we find that from every point comes the report of a dull and quiet market, the supply ample, or greater than the demand. Why is this? It might make an interesting study to go into all the causes which contribute to this condition of affairs, but at present I am going to touch on only one of them, with a scheme that will at least tend to alleviate the evil. We all know that the public needs a great deal of education in regard to honey. It is evident that the belief is widespread and firmly fixed that a great deal of the honey on the market, including comb honey, is a manufactured and adulterated article. Many, even of those who sell honey, believe this, and foster the belief in the course of their business. The opinion is growing among those who have given this matter their attention that this mistaken notion is largely responsible for the lessened demand for honey. So far we have done but very little to counteract this evil, and it is time we were doing something aggressive. Here is one plan that seems to me likely to help. Let one of our best men write a short but succinct and vigorous article on the general qualities of honey, explaining that the flavor and color vary according to the source from which it was gathered; that the whiteness of the combs depends on the kind of bees that made them, and upon the care taken by the apiarist to remove them from the hive as soon as finished; that the combs are straight and even because they are all built between separators, and because comb foundation was used. Make it clear that this is the nearest approach to artificial comb. Show that no two are exactly alike. Tell of the offer make by the National Bee-keepers' Association and other responsible parties to forfeit large sums of money to any one who will produce evidence of manufactured honey. Also, tell where and how honey should be kept. This could be used in two ways. First, by printing it as a leaflet, a number of which should be enclosed in each case of honey sent to market, with the request to the dealer to send one out with each section of honey sold. Second, by printing it as a poster, to be placed beneath the cover of each case of honey. At present a sheet of blank paper is usually placed between the sections and the cover. This might as well be utilized by having something printed on it which would at least catch the merchant's eye and give him no excuse for remaining in ignorance. Then, if he chose, he could post it up where all his customers might see and read. At the least, he would probably call the attention of some of his customers to the statements thereon. This poster should be "set up" by some expert in composing display advertisements, so as to give due prominence to important points. This leaflet, or poster, might be printed by the National Bee-keepers' Association, and distributed to its members at a nominal price, just sufficient to pay expense of distribution. It might, perhaps, make no better use of its money than to distribute a limited number free to each member who would apply for and agree to use them. At any rate it should have its sanction, officially expressed, in case it were thought better to leave it in private hands. For instance, all manufacturers of shipping-cases could supply a printed cover sheet at very small additional cost over the plain sheet they have been furnishing. It seems to me that this plan promises benefits out of all proportion to the small cost of carrying it out.

We have some excellent leaflets already. The one by Dr. Miller, "The Food Value of Honey," is particularly good. Much might be done by distributing these more freely. But we need something which, while covering more ground in some directions, is a great deal shorter and more concise, so that it can be read almost at a glance, otherwise many will not read it at all. The public is surfeited with advertising literature of all kinds, and we need something short and striking to attract their attention.

Editorial
By E. R. Root

COMB FOUNDATION NOT ADULTERATED, AND WHY.

SOME time ago Prof. H. W. Wiley, a most strenous advocate of a national pure-food law, and a man whom we believe is disposed to help bee-keepers and their allied interests rather than injure them, has given out a statement to the effect that the manufacturers of foundation were putting out adulterated goods. At first we thought we would pay no attention to it, as we did not think there was one bee-keeper in ten thousand who would believe it; but as two of our brother-editors have denied that such practice has been going on on the part of foundation-makers, it now seems pertinent for us to say that, out of between 300,000 and 400,000 pounds of foundation made annually in the United States, we will guarantee there is scarcely a pound of it adulterated. I say *scarcely*, because foundation-makers are buying wax from everywhere, and they might, in spite of their careful inspection, allow a single cake of adulterated wax to get in with the good, with the result that a single sample might show a very slight adulteration. The makers of foundation in this country know that, if they wish to ruin their business, and that right speedily, the quickest and easiest way to do it would be to begin to adulterate their goods. Paraffine and ceresin foundation are something that can be detected by bees and bee-keepers almost instanter. Again, the modern methods of making foundation will show up adulteration in the wax very quickly. Indeed, it is practically impossible to make adulterated foundation on Weed machinery. The reason why we *know*, is because we once *tried* making some sheets of wax and paraffine for the dental trade that called for it, and had to give it up as a bad job.

"SOMETHING THAT PROMISES BETTER THAN SHOOK SWARMING."

THE heading above is the title of an article by Mr. H. G. Sibbald, of Claude, Canada, in the *Bee-keepers' Review* for March. Whether the plan is new or not I do not know.

The article by Mr. Sibbald is very brief—so brief, indeed, that one must read between the lines in order to comprehend fully the whole plan. The trouble is, Mr. Sibbald presupposes that the practical bee-keeper would supply the missing links, and many of them undoubtedly will; but I was not able to until the second and third reading. But as I understand the plan I believe it to be an excellent one, and possibly shorter and better than the shook-swarm method. Well, here is my version of it:

When a colony is discovered building queen-cells, Mr. Sibbald says we are to move it off its stand a little to one side. I understand he means to move it sidewise so that it will be a few inches to the right or left of the exact position where the hive formerly stood, the entrance pointing in the same direction. In the place where the old hive No. 1 stood, hive No. 2, just like it, is placed. It may contain empty frames; but Mr. Sibbald prefers that it have two empty combs and a few frames with starters of foundation. As the relative position of these two hives will be changed about in this general manipulation, we will call the *old* hive with its combs, bees, brood, and all, No. 1, while the new hive, now on the stand of the old one, No. 2. Be sure to keep these in mind in order that we may not misunderstand the process that follows.

Well, the next step is to take out of hive No. 1, or the old colony after the shift, a frame of brood with queen-cells, making sure that we do not get the queen, and place it, with the adhering bees, between the two empty combs in No. 2, or the *new* hive on the old stand. In addition the supers and the bees which they contain on No. 1 are given to No. 2 on the old stand. In the two combs will be stored the pollen, thus preventing it from being carried into the supers. The result of this operation will be that the field bees from No. 1 will go into No. 2 on the old stand. The field bees now in No. 2, having been robbed of nine-tenths of their brood and their queen, but with good prospects of soon having a new one, and having very little brood to care for, will soon lose their swarming-fever and go right to work in the supers. They are not likely to build much if any comb in the partly empty lower hive. There is no laying queen below, and no particular incentive to build combs for egg-laying, for the virgin yet to be hatched will not be laying for two weeks. The old colony having lost its field bees will not have any honey coming in; and the young bees will naturally conclude there must be "a famine in the land, or that the season is over," as Mr. Sibbald puts it. As a natural consequence, they remove the larvæ from or destroy every queen-cell. The swarming-fever of both colonies, 1 and 2, has been entirely abated, and for ten days or even a longer period there will be no danger that the fever will come back.

At the end of this time the bee-keeper has the option of increase or no increase. If he desires the former he will proceed on the following plan:

THE SIBBALD NON-SWARMING PLAN FOR INCREASE.

Remember now that the old colony, No. 1, is a few inches to the right or left of the new hive, No. 2, now on the spot that the old colony originally had. For the sake of clearly understanding the method we will suppose No. 1 is on the *right*. Now jump No. 1 right over the new hive, No. 2, so it shall be on the *left* side, facing the same direction, and the same distance away. In the ten days or two weeks that have elapsed, many of the young bees that were too young to fly when the first shift was made will now be field bees. These will naturally go into No. 2, because No. 2 is nearer the stand to which they have been flying, so that, again, No. 1 gives up its field bees to No 2. If the apiarist desires to carry the process still further, in ten days more he can jump No. 1 back to the position it occupied after the first shift, or to the *right* of No. 2. Again, it, No. 1, will give of its field bees to No. 2. So the process might be repeated until No. 1 would be weakened clear down; but I should conclude, in the absence of any statement to the contrary, that there would be only one or possibly two jumpings, at the end of which time No. 1 is removed to an entirely new location when again it will give its field bees to No. 2. It might then be little better than a nucleus, but would rapidly increase to a fair colony for winter, while No. 2, which has been receiving fresh invoices of field bees, would become strong, and pile in the honey.

The only question that arises in my mind is whether or not these fresh accessions of bees would not induce swarming in No. 2; and, still further, would these field bees always go into No. 2 rather than seek out their old entrance? The strain of bees would have something to do with this.

So much for increase. When increase is *not* desired, the following is the plan:

THE SIBBALD NON-SWARMING PLAN WHEN INCREASE IS NOT DESIRED.

We now go back again to the point, ten days after the first shift was made, when No. 1 was moved from its old stand a few inches to the right. It will be remembered that, ten days before, we had given No. 1 a frame of brood with cells on it. If the old queen is a good one and we do not care to let the one in No. 2 hatch out or lay, we destroy these cells or virgin, if hatched, and put the frame of brood back into No. 1. But at this point Mr. Sibbald does not explain what he would do with virgins that may have hatched prematurely. Cells five or six days old at the time of the first shift would be liable to hatch out a virgin before the ten days were up. As will be seen I have taken it for granted that he would dispose of them.

We will assume, in this case at least, that the virgins have not hatched, and we have destroyed the cells and put the frame of brood back into No. 1. We take away hive No. 2 entirely, and put No. 1 in its place, or exactly the same place *it had at the very start*. The young bees and the brood will now have been added to the field force plus the old queen. Of course, the super should be taken off from No. 2 and put back on No. 1. No. 1, during the interim of ten days, has been under the delusion that there was a famine in the land, has destroyed its queen-cells, and therefore the swarming fever that had already begun to manifest itself ten days before has been killed out simply by a shift of hives. The cells in No. 1 that were left have been destroyed by the bees without any act on the part of the apiarist; there has been no interruption in brood-rearing, or practically none, except the small amount that might take place owing to the stoppage, apparently, of the honey-flow; but as soon as the young bees begin to go to the fields the queen would commence laying as before. One would naturally suppose that the swarming fever would come on again. Editor Hutchison suggests in his footnote that it may do so; but Mr. Sibbald says if plenty of super room is given it will not.

Once more, if the old queen is not desired, wait until the cell or cells hatch and virgin begins laying in No. 2. Kill the old queen and unite the two colonies as before directed.

The particular claim for this method over shook swarming is that it does away with all shaking of bees—an operation that is unpleasant, to say the least. In shaking combs I have found that bees will often fly up and sting. This is particularly so of certain strains. If they are shaken out in front of the entrance, one is liable to trample on them during the operation, or to get bees up his pants legs. New honey is liable to be sprinkled all over the bees and upon the grass. Of course, this can be avoided by brushing rather than shaking.

Another claim for the method is that it does away with the destruction of queen-cells by the apiarist or the chance of his missing some; for the bees do all that work themselves far cheaper than any human being, and without a miss.

I have thus supplied what are, in my estimation, the "missing links," for I am satisfied that many of our beginner bee-keepers would not understand the method just as Mr. Sibbald gives it in the *Review*. Perhaps I have not given it strictly correct; but so far as I can see it dovetails with his instructions.

The more I think over this whole plan, the more I am pleased with it; and I do not wonder that Editor Hutchinson felt that he had made a "good scoop" over the rest of us when he secured the prior publication of the method. We certainly shall give it a test in our own yards this summer; and if it proves to be simpler and quicker than the "shook" plan, which is regarded with so much favor by our bee-keeping friends, Mr. Sibbald will, to say the least, prove a benefactor to his fellow bee-keepers.

He does not say that he would have hives exactly alike. This may not be essential; but it would be advantageous, I am sure; for the fresh field bees will be more likely to go to the hive nearest their old location if it has the same outside appearance as the old hive.

I shall be glad to hear from our subscribers as to what they think of the method; and if any of them in the South can give this an early test we should be glad to have reports at once.

IN MEMORY OF CAPTAIN HETHERINGTON.

OWING to a lack of space we were not able to make mention before of one of the notable double numbers of the *American Bee Journal* for Feb. 23, which was also a memorial of the late Capt. J. E. Hetherington. The facts gathered in regard to this eminent bee-keeper are interesting and valuable. The main article is written by the captain's life-long friend P. H. Elwood, of Starkville, N. Y., also an extensive bee-keeper of many years' experience. For many years the captain ran almost continuously some 3000 colonies. He made his own supplies, and well he might, for he was a fine mechanic. Not only that, but he was the inventor of many of the useful appliances now generally recognized as valuable and in some cases indispensable throughout the bee-keeping world. I have already stated in these columns that he was the inventor of the no-drip shipping-case; of the tall section; the super-spring which has lately come into use, and now it appears that he was also first to make use of wires for staying up foundation, and subsequently secured a patent on the method. He was quick to see the value of inventions made by others; and while he was not a contributor to any of the bee-journals he was familiar with all that was written, and there was not an idea or method of value that he had not tested most thoroughly. So extensive was his business that it was simply impossible for him to write for bee papers, and, what was more, if he had the time to write such articles he could not afford to assume the responsibility of the voluminous correspondence that would naturally follow later on.

A few things in regard to the captain's life that have never been made public before are given in the *American Bee Journal*. Here are a few of them:

He introduced Carniolan blood simply to fight off the ravages of black brood. The prolificness of the queens, he said, kept up the strength of the colonies so that they were more able to ward off the disease.

For the last twelve years it is further recorded that he wintered his bees as well as farmers winter any kind of live stock. A year ago he took out one lot of bees numbering over 800 colonies, *without finding a single dead one*. If any one else has the science of wintering down as fine as that, the bee-keeping world has never heard of it. I consider the performance but little short of the marvelous, and yet that is a good deal the way this "prince of bee-keepers" did things. Perhaps a partial secret of his success may be explained by the fact that the captain believed *in ventilation and lots of it*. A picture is shown of one of his latest winter repositories, having two large ventilators at the top, communicating with openings through the floors over the bees. These ventilators were open except in the coldest weather. Mr. Elwood says of him that "he believed in abundant ventilation for bees." Certainly if ventilation were detrimental there would have been at least a few dead colonies out of the 800 last spring. This feat is so very remarkable that I hope Mr. Elwood, if he knows the exact method the captain employed from start to finish, kind of cellar, size, ventilation, etc., will communicate the results to the public.

Again it is said of Hetherington that "he found bee-keeping dependent on luck for a passing existence: he left it a specialty founded on the rock of science, the peer of any branch of agriculture."

There have been various opinions as to the virulence of foul brood as compared with black brood. It is interesting to note that Capt. Hetherington said that he thought the latter was "twenty times as bad as foul brood." He has often been styled "the prince of bee-keepers," a title that was particularly appropriate, and certainly fairly won. Well, now, if the prince of bee-keepers thought that black brood was twenty times as bad as foul brood, no wonder the bee-keepers of York State have had a problem. The fact that they have accomplished such marvelous results in eradicating it is greatly to their credit.

Captain Hetherington was a man of the finest executive ability. Without fuss or flurry he would so manage his help that an enormous amount of work would be done in a given time.

He was a charming conversationalist, and one of the most genial men I ever met. I doubt if there ever was a man in all our ranks who could bubble over with such effervescing enthusiasm as he.

I will not attempt to go over his record as a soldier, brilliant though it was, because that has already been given in our columns. One of his comrades through the *American Bee Journal*, speaks of him in the most glowing terms.

MORE PERSECUTION FOR BEE-KEEPERS—MANUFACTURED COMB HONEY.

THIS time it is that otherwise excellent farm paper the Philadelphia *Farm Journal*. "Aunt Harriet" says, in her talk about employment for women, as follows:

> Bee-keeping is pleasant and profitable work, and real honey is hard to get, in these days. Not only is the "honey" manufactured, but the wax cells, as well, are imitated; so that, even though you buy your honey in the "comb," you are as likely to get glucose as not. Therefore, fragrant honey, the real product of the bees, will always find a good market, and my women readers might be able to sell it through the Woman's Exchanges.

The above is simply astounding, especially when we recollect that this journal has a very ably conducted department for apiculture. Friend Selser, who lives in the same city, has explained to the *Farm Journal* people the damage they have done, and no doubt in their next issue they will do what they can to undo it. It is bad enough to be misrepresented by our enemies, but ever so much sadder when such blows come from our friends. May God help us in this never ceasing fight, for such it seems, against misrepresentations in regard to our industry.—A. I. R.

GENERAL
CORRESPONDENCE.

PRATT'S "BABY NUCLEI."

Some of Pratt's New Kinks; Should the Honey-Producer Attempt to Rear his Queens or Buy Them?

BY E. R. ROOT.

A short time ago Mr. E. L. Pratt published a pamphlet on the general subject of "Baby Nuclei," in the latest style of the printer's art, a good deal after the style of the celebrated Roycroft publications. In this little work Mr. Pratt brings together all of his latest practices on this subject of miniature clusters of bees.

I have already explained in these columns how to get queen-cells and hatched virgins in quantity. This is easy. But up until lately it has been neither easy nor cheap to get the virgins mated. The problem is now satisfactorily solved.

In his introductory chapter he says that one small section of comb and ten bees, properly harnessed, will surround the virgin queen with all the environments tending to maternity flight; but that twenty-five or fifty will do better. Much over a small teacupful to each mating-box he believes would be a positive disadvantage. While one can use 4¼ sections for frame, yet his ideal frame is of such a size that six of them will fit inside of a regular Langstroth frame. These "baby" frames have no ears or projections, but are secured to the cover by means of two bent staples.

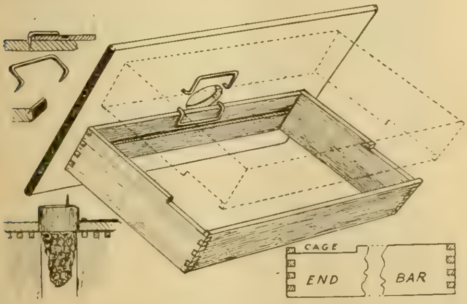


Fig. 1.

Last season the Root Co. tried in its queen-rearing yards a "baby" nucleus box that is practically the same as the Pratt—so near it, in fact, that I think it but fair to say it is the same thing. The illustrations accompanying show its general construction.

The little hive consists of a box made of ¼-inch stuff, 3¼ inches wide, 6 inches long, and 4½ inches deep, inside measure. The cover is made of material of the same thickness, with V-shaped channel-irons driven over the ends into corresponding saw-cuts to prevent warping. Through the center of this cover is bored a hole of just the right size to admit a wooden cell-cup to which the bees have built a queen-cell. The frames, as explained, have no ears or projections on the top-bars, and, in fact, are nothing more nor less than four-piece sections ⅞ wide, 5⅝ ×4, or of just the right size so that six of them will fill a standard Langstroth frame. If these little frames had projecting ears they could not be fitted into the larger ones, so other means must be provided whereby they can be secured in a hanging position. Mr. Pratt devised bent staples, using one of them at each diagonally opposite corner of the top-bar. We prefer to use one large one, the same projecting to the center line of the top-bar, for the reason that the

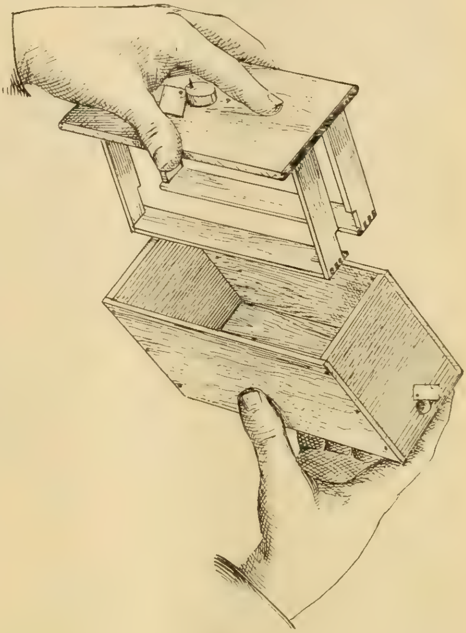


Fig. 2.

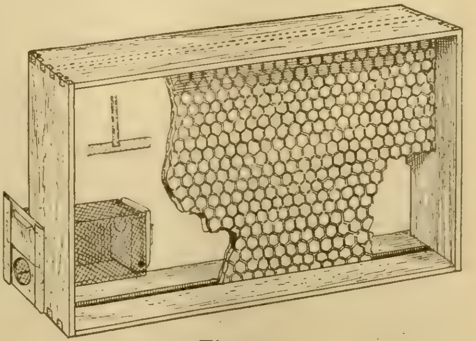


Fig. 3.

frames may the more readily be detached for handling. See Fig. 1.

These little frames, as we make them, have grooves in the top and bottom bar to admit a sheet of foundation, which is cut just the right size to fit. Six of these frames filled with foundation, and fitted into a standard Langstroth frame, can be put down in the brood-nest of a strong colony. When the foundation is drawn out and filled with honey the six frames in one may be cleared of bees, slipped out of the big frame, and secured to the cover by means of the bent staples as already explained. When in position they look like the cut shown in Fig. 4. The only points wherein the whole arrangement differs from the Pratt is in the employment of one large bent staple, in place of two, and the manner of preventing the cover from warping. The use of the introducing-cage will be explained later.

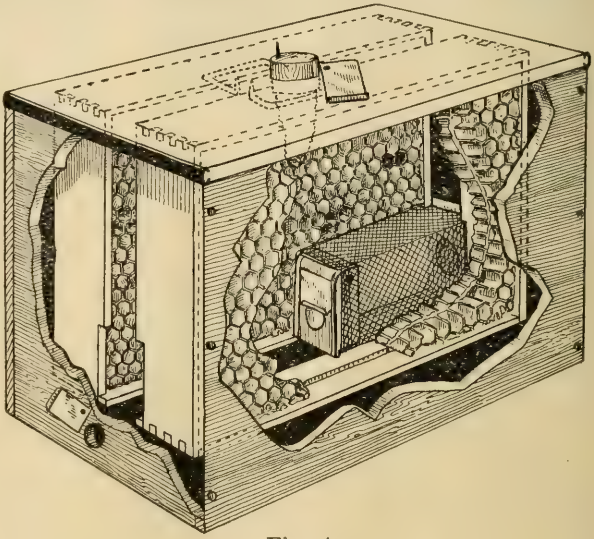


Fig. 4.

Having the little "baby" frames filled with comb and honey, and attached to the cover, we are now ready to fill with bees. A lot of the mating-boxes are thus prepared, and placed on the ground in two rows. Between these two rows is an empty hive-body into which several frames of bees have been shaken; but before shaking them they are smoked thoroughly so they will fill themselves with honey. They are then scooped up with a teacup, anywhere from 100 to 200, and dumped into one of these "baby" boxes. Each of the other boxes is filled in like manner. Of course, the tin slide over the flight-hole is shoved over so as to close the entrance. The bees are then left this way for 24 hours, when a virgin queen is allowed to run among them. Or they may be given a queen-cell through the cover in the top, as shown in Fig. 4; or the queen may be introduced in a regular introducing-cage, which is shoved down between the end-bars as shown. It is proper to explain, however, that the latter is not the Pratt cage. Instead of letting the virgins run in with the chance of losing some, it may be found preferable to introduce them in the cage. Mr. Pratt explains, however, that, if the bees are vigorously smoked and then dumped into the little mating-boxes, and left

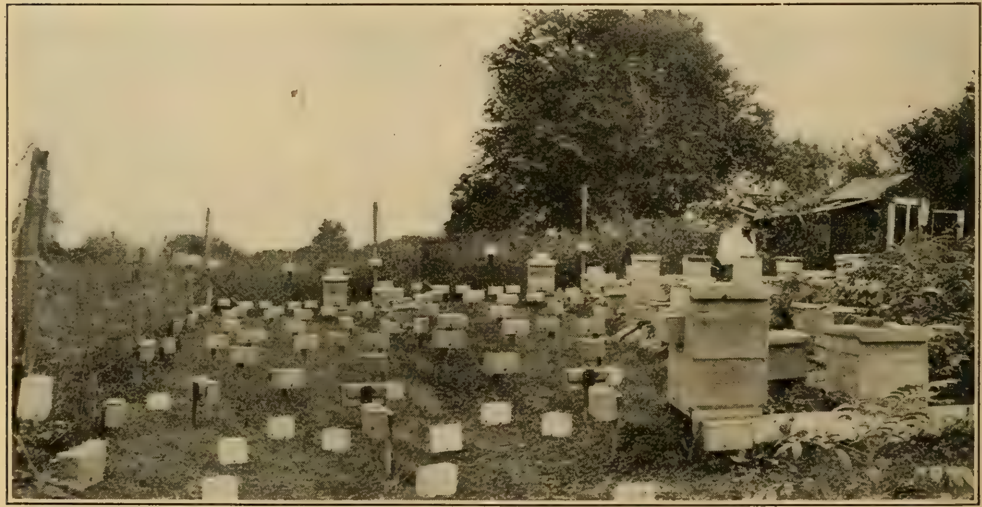


FIG. 5.—PRATT'S QUEEN-REARING YARD AS EQUIPPED WITH HIS BABY NUCLEI.

there for 12 or 24 hours, they will be in good humor to accept any virgin that may be given, and this is generally true. But the beginner may find it better, perhaps, to use an introducing-cage, erring on the safe side.

Our author explains that a swarm can be divided up into many little clusters; and the bees, when allowed to fly, of course will stay where they are placed. He also says that loafers hanging on the outside of any hive, where they will do nobody any good, much less themselves, may be scooped up with a teacup, put into these little boxes, and made to perform useful work. In any case, where the bees have just been taken from the queen they need to be kept confined from 12 to 24 hours in order to impress on them their utter queenlessness, and to make them stay wherever they are placed. One, however, could let the bees fly the same day, providing the boxes used were taken to some outyard where the queens may be mated, then brought back to the home yard, where the queens can be shipped out as fast as they begin laying.

In short, Mr. Pratt says, take bees from any place where they are most accessible, but do not take so many from any one colony as to ruin it entirely "*unless you elect to take the entire lot.*" Italics mine. This is a good point. Better break up a whole colony than to take a few bees from a lot of them.

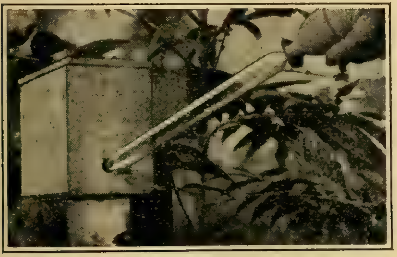


FIG. 6—HOW PRATT FEEDS SYRUP TO THE BABY NUCLEI.

In Fig. 5 is shown a view of the Pratt queen-rearing yards, photo taken by John M. Hooker, where Mr. Pratt has his mating-boxes in actual operation by the hundred. Some of them are placed on T stakes, others on the ground, and still others on the fence, the object being, I suppose, to give the bees and also the virgins an opportunity to mark their own little homes.

In Fig. 6 is shown a method of giving one of these "babies" a small supply of food, not exactly with a baby-bottle, but by means of a glass tube and a rubber bulb. The syrup is drawn up into the tube, when the end is introduced through the flight-hole. A slight pressure on the bulb forces a small quantity of feed on the bottom of the box. If our friend keeps on improving his methods he will end up by merely turning a crank and grinding queens out by the peck.

This little book of Mr. Pratt's is worthy of careful reading, not only on the part of the queen-breeder, but of the producer of honey as well. And that reminds me that bee-keepers who produce honey only, tell me at conventions that they can not afford to rear queens. In this I think they are mistaken. By the new plan one needs to break up only one or two colonies at most, and rear all the queens he can possibly use for the home and out yards in a comparatively short time, and at a very small expense. I verily believe that the day for the use of two-frame nuclei, standard Langstroth size, for mating queens, has gone by. It is a waste of good money and time to use six times more comb surface covered with bees than is absolutely needed for doing the work.

WINTERING THE BABY NUCLEI.

We have never tried to winter these small boxes of bees, but I have just received a letter from Mr. Pratt, wherein he says he has been very successful in the wintering of these little boxes of bees, even outdoors. While that might be done in the mild climate around Philadelphia, it would not do at all in a colder climate like ours. There is a possibility that they may winter in the cellar if the temperature can be kept at exactly the right point. We'll try it next winter.

PUTTING UP EXTRACTED HONEY.

Flowers Impart Certain Volatile Oils to Honey which Gives it the Peculiar Flavor; Put up Immediately after Extracting to Retain Flavor or Aroma.

E. D. TOWNSEND.

From the August 15th, 1904, *Review* I copy the following: "In handling honey after it is extracted, we work on the theory that, the quicker it is canned after the impurities have separated, the better the honey. . . . Probably the greatest point in favor of canning honey as we go is the fact that not more than one bee-keeper in a hundred has a suitable place for keeping honey, so that, the longer it is left open, the poorer it gets in both body and flavor."

Since writing the above another season has passed—a season in which the weather was very unfavorable for the production of a superior article of extracted honey. Our crop was reduced by half, and what we did get was below the average as to quality.

But after producing good honey the next step is to extract and handle the crop in such a manner as to preserve the body and aroma, in order that it may be delivered to the customer in the best possible shape.

Our practice for several years has been to provide tanks large enough to hold a day's extracting, at least, for the honey is emptied directly from the extractor to the tank, without straining, by simply letting it stand over night. In the morning it is skimmed, and drawn off into cans from gates at the bottom of the tank until signs of scum begin to flow. In this way we get the honey free from scum or particles of comb.

But in letting this honey stand over night we lose much of that beautiful aroma so apparent in honey fresh from the hive. All bee-keepers know of this exquisite aroma, so noticeable while extracting and when working over the hive, before it has been exposed to the air. We are told that flowers secrete volatile oil as well as honey, and that some of this oil is carried and stored with the honey, which gives it that delicate aroma we all strive so hard to retain. It appears that this volatile oil evaporates and passes off when the honey is exposed to the air for any length of time in open tanks; so if we want to retain this aroma we must *can our honey as fast as extracted*, even if it does contain a little scum. It is obvious that, *if* we can retain this aroma, the scum is of a secondary nature.

I will confess that my experience has been limited in this mode of handling honey; but what experience I have had has been quite favorable to this early canning. In fact, I have so much confidence that this is the correct principle for putting up extracted honey that I shall handle quite a large part of my 1905 crop, in this way. A small tank will be arranged with a fine muslin strainer; and as fast as the honey passes through the strainer, while it still contains the animal heat, it will be canned up air-tight. This will save quite a little in expense for tanks, and also take up less room in the extracting-house; but one will have to keep a good stock of shipping-cans on hand.

Another point, this warm honey will run through the gate of the tank much faster than cold honey, so the canning and weighing will not take nearly as long as with cold honey.

Now, Mr. Editor, can't we have a little discussion along the line of handling honey after it is extracted? I think some good would come from it, for I am thoroughly convinced there is no part of the production of extracted honey where so little thought and system are used as in this part of the manipulation of the crop. I have been in a good many bee-yards in this State, and I find there is no uniformity in the handling of honey. A good many leave their honey in open tanks, barrels, lard-cans, and, in fact (in some cases), any thing that will hold honey. Few have a suitable place to store honey, even if handled in an expeditious manner.

I have known some to leave their honey until it candied hard, thus causing them the extra work of remelting before they could put it up in shape for market. This, according to my ideas, makes the crop worth less, for the aroma will be lost; and unless it is done very carefully the color also will be affected.

In melting candied honey in 60-lb. cans, leave the screw-caps in place. This will retain the aroma, and prevent the honey running over on account of the expansion of the heat. Use a slow fire in melting, as the honey may be spoiled. It ought to take three or four days to remelt a 60-lb. can of honey that is candied solid. Never think of allowing the water around the can to boil, or your honey will be ruined. If you use dry heat in melting, it ought to be a rather slower process than the water method.

Remus, Mich.

[So far as I can recall, the importance of having honey sealed immediately after extracting has never been particularly emphasized. There have been various hints and some slight references in the matter, I think. I am inclined to believe there is much in what our correspondent has said, for two reasons: 1. Extracted honey, just as it is taken from the comb at the height of the season does have a peculiar aroma that one does not ordinarily find after it has stood for a time in open cans; possibly this aroma is due to the unripeness. A little unripe basswood just from the comb I like; 2. There are many who prefer comb honey to extracted, urging that the former is sweeter, or has some quality about it that makes it taste better than the latter. Assuming for argument's sake that honey fresh from the comb has a certain aroma that honey long from the comb does not have, there is just one difficulty; and that is, how to get rid of the scum and dirt. So far straining does not seem to accomplish the result satisfactorily. For that reason large settling-tanks have been almost universally regarded as a necessity by extracted-honey producers. Now, then, if the honey be sealed in cans immediately, it appears to me that the scum and settlings would be more objectionable than the loss of a small amount of aroma. In other words, the looks or appearance would be a much stronger factor in selling or not selling the article than the flavor. We should be glad to hear from others of our subscribers, now that Mr. Townsend has opened the discussion.—ED.]

CLOSED-END FRAMES FOR WINTERING.

Not so Good in Severe Winters; Better in Most Other Respects; the Danzenbaker Frame Liked.

BY N. D. WEST.

In wintering bees outdoors in chaff-packed hives, with closed-end frames, I have noticed that, in severe winters, water and ice are more liable to collect on the inside of the end-bars, thus preventing the bees from going around the end of the comb. The moisture becomes more general all through the hive, and in severe continued cold winters bees do not winter as well outdoors as they do in open-end frames or in the Hoffman, which is open most of the way down. In a mild winter the closed-end frames winter bees even better than the open-end frames. Closed-end frames are better for cellar wintering. In the cool weather of spring and fall, bees breed up faster in closed-end frames out of doors. I am speaking of frames about 17 in. long and 10¾ deep.

In severe cold winters, with the open-end frame the moisture will collect on the outside of the frames, and on the inside wall of the hive, leaving the combs well ventilated, and all will keep in a more healthful condition. It is more essential that the hive be so made as to pack well at the end of the frames than the side of the hives. If the ends of the open-end frames are well packed in cold weather the bees are very liable to cluster against the warmer end of the hive, and near the top; as the weather gets warmer they will spread out over the combs, and draw back and cluster at the end as the day cools off. Such hives are better for wintering outdoors if the entrance is made at the side of the hive, and pack the other side, leaving the entrance side of the hive without any packing, or not very much if any. I speak from what I have seen of side entrances. I like to have the bee-entrance at the end of the hive, for hives that are to be wintered in cellars. The most important is, the hives can slant forward both summer and winter. Side entrances are better for wintering outdoors only with end-packed hives. Such hives should have a tray made as large as the top of the hive, with a burlap nailed on the bottom. Fill the tray with chaff—three inches deep is enough—*better* than more. It lets the moisture go up through. I would rather have but two inches of chaff than over three. Then over this I place a cap or hood to cover all, which gives at least three inches of air space above the chaff tray.

Bore two 1½-inch holes in this hood-cover. Bore one in the diagonal corner from the other, and cover with wire cloth nailed on the inside. Cover the hood with tin to make it sure not to leak, and you will have a good hive to winter bees in.

The hives that I have in mind have open-end frames about 15 inches long and 10 inches deep, inside measure. These hives want a bee-space over the frames in cold weather. When the freezing weather is over with, put an oilcloth between the brood-frames and the chaff tray to retain the heat for the benefit of the brood. The moisture will not trouble in warm weather if your hive is made right to keep out the rain.

Now, about the Danzenbaker hive with closed-end frames.

I have had but very little experience with them. I do find a few of them that are being used by apiarists where the most of their hives are of some other pattern. I find that the colonies are as strong in these hives as in the other; in fact, I believe they winter fully as well if not better. In cellars are the places where the most of them are wintered that I have noticed. I presume that, with plenty of upward ventilation, they will winter well outdoors in a suitable chaff-packed hive. I find them from place to place where I am inspecting apiaries. The apiarists speak well of them as a comb-honey hive. I believe they are good for that. However, I find the frames are not the most convenient for me to get out to inspect the brood, etc. I haven't learned how to handle them. I find people are devising various ways for spacing these frames, etc. I'll try a few in my own apiary and see.

For me the standing Hetherington closed-end frame is the easiest one to handle when running an apiary for comb honey, especially so for an out-apiary, where the queens have to be found at any time of the day and all kinds of weather. At just such time as I may happen to be there I can find queens in such hives when I wouldn't think of opening a hanging-frame hive.

To apiarists I would say, use some good frame hive, and then learn well how to use it to get the best results.

I am very often asked the question, "What kind of hive would you recommend me to use?" To beginners I feel safe in saying the Langstroth, because they are a very good hive, and you can buy supplies and all the outfits for an apiary at any bee-supply house. Should you become *wise*, and want to invent something that will suit you better, you will know better how to do it after you have a little experience. For instance, this last summer I called at a place where the apiarist had cut all of his eight-frame Langstroth hives (about 300) down so they would take frames only six inches deep. The next day I took a train and rode about 25 miles, and there I visited an apiary where the apiarist had been very busy in sawing down through the ends of his eight-frame Langstroth hives, and putting in a strip of board so as to make his hives wide enough to hold 12 Langstroth frames. Both of these apiarists have been in the business for many years, and both were sure they had made a big improvement. However, the former was changing to produce comb honey, and the latter was changing to produce extracted honey.

Middleburg, N. Y.

[One of the strongest arguments that have been made in favor of any closed-end frame has been that it winters bees better than the open-end sort; but here comes one of the most extensive bee-keepers in York State, a user of closed-ends—a man who has visited many large apiaries in his official capacity as foul-brood inspector, giving it as his opinion that the open end makes drier brood-combs, and hence better wintering. I have long known Mr. West as a careful bee-keeper, and his opinion on the point is worthy of careful consideration.

It is certainly true that the Hetherington closed-end frame, or what some call the Hetherington-Quinby, offers special facilities for finding queens quickly. Nearly fifteen years ago Mr. P. H. Elwood showed me how he could find queens on these frames with the greatest of ease. The outer case is lifted off, leaving the frames standing on the bottom-board. A thin-bladed knife separates the brood-nest perpendicularly at any desired point. The separation allows the light to stream in *at both ends* as well as through the top; and very often Mr. Elwood showed me that it was not necessary to take the frames out at all, for these standing combs could be shoved along, allowing the light to stream through past the ends and over the tops. In fact, there is no other hive in the world that is more dissectible, and, I might say, expansible, than the one first devised by father Quinby and improved by the late Capt. J. E. Hetherington, mention of whom is made elsewhere in this issue.

After seeing this hive handled I was very enthusiastic about it; but after seeing the Hoffman frame handled I concluded that, inasmuch as nine-tenths of the hives in the country were of the Langstroth pattern, the Hoffman would be more feasible to adopt for such a hive. For that reason the Root Company introduced the Hoffman frame instead of the Hetherington-Quinby.

Many of our readers perhaps will desire to know more about the Hetherington-Quinby frame. They will find it fully described under "Frames, Manipulating," in our A B C of Bee Culture. In a word, I have felt about the Hetherington-Quinby hive a good deal as I do about the metric system of measurement—both excellent, but practically impossible of general adoption, as the old systems have become so thoroughly entrenched.—Ed.]

THE WINTER IS STILL THE PARAMOUNT QUESTION.

Bee-cellars Below the Surface of the Ground in Michigan; Occasional Low Temperatures will not Hurt the Bees.

BY T. F. BINGHAM.

We have heard of contagious or infectious disorders among bees; and while it might be well to consider them they are as nothing compared with the risk and trouble incident to the decimation of winter.

While bees do not freeze to death in Tennessee, Georgia, or Virginia, bad wintering is the bee-keeper's calamity there. The spring, though long, fails to bring to the ordinary bee-keeper strong colonies at the early and proper time, just as in Michigan. The fact can not be disguised.

Bee-supply dealers all over the Northern States are called upon to furnish hives that will enable the bees to go through winter and be strong in the spring. Hundreds of bee-keepers have experimented with all sorts of hives and all sorts of protection. Mild favorable winters and good honey have led bee-keepers thus experimenting to believe they had at last solved the vexed problem, only to find the next winter had dissipated their cherished hopes.

The winters of 1903 and 1904 found easy access to more than half the bees located on the self-same summer stands on which their ancestors had lived and died in the varying winters gone before; with the sad result that the worst had been realized.

There are some features incident to keeping bees warm in hives of every description in the open air. The combs are open at the edges, and in hanging frames open at the sides and top also, as if suspended in mid-air. This fact would not be of so much moment were it not for the fact that above the cluster equally open all around hangs perhaps four times the icy honey needed, on which hangs their only hope. One could, with an ordinary imagination, conceive of a plan presenting less reasonable hope.

While it sometimes happens that in trees and other cylindrical hives enough bees are carried through a long winter in such shape as to increase rapidly in the spring. The case in ordinary hives, especially those fixed for comb honey and civilized management, the case is different. One may buy expensive hives, weighted down with the choicest lumber, and feel that bees can't help wintering safely in such beautiful homes; and when spring comes, realize how fleeting, visionary, and transitory, bee life is.

A winter depository below the surface of the ground, so far as I can learn, offers the greatest immunity from winter depletion and absolute loss. Such proved to be the case in the hard winters just passed, and it is reasonable to presume that they will continue to do so.

It seems strange that bee-keepers cling so persistently to the methods of fifty years ago in wintering, when in hives and fixtures they are up to the best methods advertised. It is a well-known fact that bees do not winter as well in modern hives adapted to section and extracted honey. Such being the case, why not modernize or civilize the plan of wintering as well as honey-raising?

My experience leads me to favor a cellar entirely below the surface of the ground, partly because it is below the wind, and so is better situated to escape the frequent changes in temperature; also that, as the earth as a rule, in cold snowy winters, freezes but little, so remains at a uniformly medium temperature, greatly assisting the bees in keeping the temperature of the cellar above the freezing-point. It is well here to explain or say that no cellar above which is kept no fire, in Central Michigan, will long remain above freezing. The bees, with the other reasonable safeguards, enable almost any underground cellar, even with abundant ventilation, to remain above freezing.

There is some question whether an occasional frost in the cellar in which are bees is a disadvantage. Some have maintained that in cellars having no ventilation frost would be objectionable, and it is reasonable to suppose, as the hives would be likely to be damp or wet, that it would; but in cellars composed of Portland cement, and thoroughly dried out before the bees are put in and abundantly ventilated, no injury is done the bees if now and then the air becomes cold, even to frost, occasionally, just as would be the case were they on their summer stands in frosty November nights.

My cellar has shown a temperature about freezing during the last two weeks in January and the first three in February, and I am not worried about them. I visit them once a week with my lantern, and clean off the bottom-boards and sweep up the floor, taking note as to their stillness and the dead bees I sweep up. The light and noise arouse them, and they set up a slight murmer of appreciation all around, as much as to say, "We are glad you came—please come again." The death-rate for the three weeks above mentioned was about the same each week, and the temperature about the same. If one of you bee-keepers who winter bees in the open air could step into my cellar, out of the two feet of snow in my yard, you would realize how vastly more reasonable it is to keep them thus than to trust them in the wind and snow incident to summer-stand exposure. But that is not all there is of a cellar for bees. Such a cellar, dark, cool, easy of access in summer, is a great convenience. In case of a number of swarms clustering together they can be put in as many hives as you wish, and set in the cellar half an hour to demonstrate how many have queens; and if not all, the missing one can be quickly supplied.

I mention this as it has often been suggested that all old queens be clipped; and while it has not generally been said that swarms having clipped queens usually cluster together, it may be well to arrange so that, if they do, they can be so managed as to keep them from going to the woods. Such a cellar will pay any man 25 per cent on the cost of it every year, and last as long as he is likely to use it. It will be said that a cellar can not be made that will be dry in any other than sandy soil. Practically I do not know; but if Portland cement will hold water in a cistern it is reasonable to presume that it will also keep it out of a cistern. I have no doubt that a Portland-cement cellar can be made in well-drained clay soil just as well as in sand. Were I living in a clay region the experiment would be made.

Farwell, Mich.

[We constructed a cellar somewhat on Bingham lines—a sort of cistern under the ground with a building on top. The sides of the cellar and the ventilator were exactly the same, and yet we were not able to secure as good results as did Mr. Bingham, and why? Our brickwork did not keep out the water as it should have done, or rather, perhaps, it is more correct to say the drainage was bad. A cistern built in a sandy soil would be perfectly dry, and the only moisture would be that from the breath of the bees. With a dry cellar, and plenty of ventilation, perhaps one can allow the temperature to go down almost or quite to freezing without serious results. I question very much whether it is possible to make a perfectly dry all-underground room in a clay soil, even if the walls be well cemented. While all cisterns will hold water in our clay soil, yet I have noticed that, when the water was all out of these cisterns, the natural seepage of the soil from without would force its way through the bottom and sides; and yet that outside seepage of hard water would stay out when there was a pressure of soft water inside.

I wish to indorse the sentiment that a dark cool cellar is a good place to put bees that are mixed up in swarming time. It is also the best place in the world to put a colony or nucleus that is being robbed out. We will say there is a nucleus or weak colony that is full of robbers. Carry the whole thing downstairs, robbers and all. Keep them there four or five days. Possibly it might be well to give them a little smoke to stop possible fighting; then when they recover from the effects of it they will begin to make up an entirely new family. When taken out, several days after, the robbers as well as the robbed will be all one colony, and, what is more, what was once a nucleus will be a fair colony to defend itself.—Ed.]

Conversations
With
Doolittle

TEMPERATURE FOR BROOD-REARING.

"Good morning, Mr. Doolittle. Can you tell me what is the right temperature for brood-rearing?"

"Well, Mr. Brown, I can tell you of some experiments I have made along the line of finding out in the matter."

"But I mean in the spring of the year, when we have cold frosty nights."

"Do you think it requires a higher temperature at that time?"

"I do not know that it does; but I know it is necessary to contract the hive and preserve all the warmth from the bees in that contracted hive possible, to secure the best results."

"There is no doubt about the wisdom of keeping the bees as warm as possible, but that contracting part may not be advisable. We will talk about that later on. First, I want to say that by several tests during nights when it was cold enough so that ice was formed on ponds of water as thick as window-glass, I have found that the bees would not allow a temperature lower than 92° in the center of the brood-nest."

"What! as high as that?"

"Yes; and that with colonies so weak that they could hold brood in only two or three combs; and the strange part of the matter is, the strongest colonies did not keep the temperature more than one or two degrees higher."

"I did not suppose it required quite so high a temperature; and now I believe all the more in the contracting plan for early brood-rearing. But don't touch this part of the matter unless you wish to."

"I do wish to; but before doing so I wish to say that, with the mercury up to 92 to 95 in the shade in July and August, my experiments with a self-registering thermometer prove that 98° is as high as the bees ever allow the temperature to go; so that we have between 92 and 98° as the proper temperature for brood-rearing, at all times of the year. This answers that question about the right temperature for brood-rearing."

"So it does, and I am glad to know of this. I should have said 10 to 15° lower."

"And so should I had I not conducted these experiments. But if you will think a moment you will see that, if a temperature of 80° were right, the brood must of necessity be injured by a rise to 95 in the shade, for no extra amount of fanning at the entrance could keep it down to 80, hence the brood would perish with heat. But from the cold part the bees seem able to keep a temperature of 92 in the brood-nest with its going many degrees below the freezing-point outside the hive."

"Then you think that a temperature of from 92 to 98° is always maintained inside the *hive* when brood-rearing is going on?"

"No, I did not intend to convey any such thought as that. It is inside the *brood-nest* or inside the cluster of bees that this temperature is kept."

"But does not the hive answer the same purpose for the bees that a house does for us as to keeping the brood warm?"

"No. Here is where many make a mistake. It is well to have the hive as tight and warm as possible; but it is the *crust* of bees on the outside of the cluster that holds in the warmth and allows that inside to be maintained at the even temperature of 92 to 98°; and it is only when the bees come out to where they touch the sides of the hive that the walls of the same act as a hive or house for the temperature inside the cluster; and if it is cold outside, even then this crust of bees forms against the wall of the hive so no cold can penetrate inside of the cluster."

"But where dummies are used do they not confine the heat to the cluster?"

"No, no more than the hive does. I used to think just as you do—that it was a positive necessity to shut each and every colony on just as many combs as they had brood in when spring opened; and as they got these filled with brood I added a comb at a time to this brood-nest, moving out the dummy each time I put in another comb till the hive was filled, and rather gloried that, by this constant attention and extra work on my part, I was enabled to get more bees and honey in a season than I otherwise could.

"And are you not of this same opinion still?"

"Well, hardly."

"What changed your mind?"

"An old bee-keeper came along, and, after seeing me go over a few hives as you have been doing and recommending, said, 'Do you think that board is any warmer than a comb?' I said, 'Yes.' He said, 'Allow me to put this comb in place of that dummy, and you watch this hive as you go along over the hives in your work, just moving out the comb every time, the same as you do the dummies, and note results.' I did; and as I saw no difference in favor of either I tried more and more hives with the comb in place of the dummy till the result led me to leave all dummies out of hives, only as I wish to use them for some purpose of contraction otherwise than to advance brood-rearing. The 'crust bees' are the ones which hold the temperature inside of the brood-nest, and all the hive does is to help to keep the little heat that gets outside of this crust from passing rapidly out into the open air."

"That is something hard for me to believe."

"Undoubtedly. It was for me till my experience drove me to it. I once cut a tree having bees in it, in which the bees did a thriving business for several years, according to the blackness of the combs and the number of old cut-down queen-cells there were on the combs, and yet the bees had two entrances into their cavity or hollow in the tree. The entrance at the bottom was about three inches in diameter, and the one at the top, above the combs, was a rather long hole giving a much larger opening than the one at the bottom."

"Well, that beats me."

"Yes, and that one thing was what cured me of running out every cool night and contracting the entrances to the hive, or shutting them entirely, and then going out in the morning to open them again. But it did not cure me till I had carefully tested the matter by closing a part during one season, and leaving the rest open all the while."

"Do you pretend to say that such contracting or closing of entrances does no good?"

"The result of the trial with half the yard in one way and half in the other showed no advance of either above the other, and so I turned my attention to something that did show some gain for the effort put forth."

"Then you would not even close entrances with sawdust during the spring of the year, as the editor of GLEANINGS told of Mr. W. L. Coggshall doing?"

"My experience says it would not pay me to do so, but there is no law against your trying it if you think otherwise. Only give the matter a fair trial with half of your colonies left without this extra work put upon them."

"Well, I will try it. But now I think of the matter, I have been in the habit of using dummies on all my colonies; and had it not been for this talk I would have contracted the entrances of all. I now see that such a course is not the thing to ascertain for certain which is right. But I must be going now."

"Before you go I wish to leave a thought with you; and when you solve it (or any other reader of GLEANINGS) just tell us how it is done: A weak colony, one weak enough so there are bees between only three combs, or what is called a 'two-space cluster,' will have brood on both sides of the center comb, and in one side of one or both combs next to the cluster, with practically no bees on the other side of the comb (or away from the cluster), so that there is only the septum of the cells or comb between this brood and the cold empty space on the other side; and yet this brood will be brought to perfection without any bees or any warmth from any bees in and about the cells on the opposite side of the combs. I have seen such cases many times, and it has always puzzled me; and I doubt not but all close-observing apiarists have seen the same during a spring after colonies have wintered poorly. The colony having only 85 bees and the queen, which built up to a good colony and gave 5 sections of honey, which I have spoken of several times in my writings, had brood only in the cells on the inside of the two combs between which they clustered; and yet they held and perfected this brood during many nights when there was a heavy frost—so heavy that the ground and grass would be all white in the morning, and the young bees emerged from their cells in about the usual time of 21 days from the laying of the egg. This thing has puzzled me greatly, when all of my other knowledge goes to show that it requires at least 92° to perfect brood properly."

BEE KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS

MOVING A SHORT DISTANCE.

After last year's experiments the following plan was adopted as a satisfactory and practical one. It was tried recently on one of my own apiaries of 50 colonies which was moved about a hundred rods, and I am indebted to the manager of my apiaries, Mr. H. C. Sattler, of New Braunfels, Texas, for faithfully carrying out this plan. He says: "Tuesday I moved that bee-yard, as we had a nice sunny day. At 9 A.M. I stopped all the entrances with moss. The bees did not fly earlier, as the morning was cool. Then we moved all the colonies to the new stands. We did not leave a few weak ones in the old yard, as I overlooked that in your outline. Next day, at noon, I opened all entrances, smoking each one well. The bees came out and flew around, and marked their new location, except the ten colonies of Holy Lands. They came out with a rush, and did not pay much attention to my smoke.

"I went to the old place to see how many bees were returning. There were about ten or twelve to a stand of Italians; but three times more of Holy Lands, and hardly any goldens. They did not stay longer than about ten minutes, and I saw them all returning to the new location—at least all the Italians and goldens. At 3 P.M. some of the colonies on the new stands were working, but no bees returning to the old places. I will not say that it works as well with Holy Lands, but it worked successfully with the others. On the third day the weather turned cooler and the bees did not fly."

Bees can be moved in this way almost any time during warm weather when bees are flying, if it is not too hot. The entrances are only slightly stopped with moss or green grass, and in very warm weather a piece of section placed under each corner of the cover affords ventilation. There is no danger of suffocation, as the bees can easily free themselves at the entrance. When they gnaw out, the obstruction causes them to mark their location, so very few bees go back to the old one. This obstruction should be partly left when the entrances are opened the second day. In many cases it is hardly necessary to make the extra trip for that purpose.

I think it unnecessary to leave any colonies in the old yard to catch returning bees. If they find nothing but the bare places where these hives used to stand they will be more apt to remember the hive they came from, and will return to it.

OPEN-ENTRANCE MOVING.

Moving bees with open entrances, long or short distances, proved unsatisfactory in our experiments. If it can be done, the danger of accidents is too great to admit the use of the method. It may work with gentle bees, weak colonies, and the right weather conditions. Strong rousing colonies would cause trouble, for they could hardly be kept in the hive by smoking the entrances. It would simply be out of the question if the bees were cross or the weather were such as when even gentle bees are irritable. Some of our Southern strains of bees can *not* be moved with their hive entrances open. Nothing but a closed entrance will keep them in when their hive is handled. Some Holy Lands and Cyprians, and their hybrids will rush out in spite of the smoke. If much smoke is used it irritates them the more. Smoke causes them to rush out of the hive instead of keeping them in. Just imagine a wagonload of forty rousing colonies of these bees! An attempt to move them with open entrances would end most disastrously.

I have tried the plan of moving with open entrances several times. It is not practical, and the risk involved is too great. The assertion that one man with a smoker can keep the bees quiet in the hives while the horses are hitched and the load is started would not hold in the majority of cases. It is impossible for one man to guard the entrances of forty or more colonies after they have been aroused by handling. I tried this myself one time, and it was impossible for two others to hitch the team. It could not be done until all the entrances were closed with rags that happened to be at hand, and even then the horses were stung by mad bees. This alludes to day moving; but my advice is strongly against moving bees with open entrances either by day or night.

BLACK BEES.

My bee-keeping began with common black bees. New queens were always raised from the mother of the best colony in the yard—the one producing the most honey. The result was a yard of black bees bred up to a high standard. The large crops of surplus proved that. Editor Root, while visiting me, was surprised at my blacks, at their storing qualities and their extreme gentleness. I did not own a veil then, and had not used one for over six years. A serious charge against the blacks generally is that of bad temper; but in mine this seemed to have been bred out. They were also more prolific than one would suppose. This can be accounted for, perhaps, as the result of select breeding, using the queens of the best and most prosperous colony to breed from. The character of prolificness possessed by such a queen would predominate to a great extent in the succeeding offspring. Thus much can be done by judicious selection with pure stock. If the drones could be controlled in mating, a much more rapid progress could be made.

Blacks are excellent for comb honey, as they cap their honey whiter than most other races. The supposition that blacks do not store late in the season did not hold with my bees, for they stored later than three-banded Italians that were introduced some years later. The Italians were all right for a single honey-flow, but they clogged their brood-nest and crowded out the queen, with the result that the colonies were in a depleted condition for the next honey-flow. The blacks, on the contrary, stored more surplus. My honest belief is that I had better success with the pure selected black bees than has been the case since Italian blood was introduced. In some respects the pure blacks were better than the pure Italians. This was especially true in a locality with several flows. With the introduction of the Italians came hybrids and some very cross and worthless ones among them. A few particular ones were very good—some of them even better than the best of the blacks; but it lasted only for those colonies, or during the length of the queen's life. The offspring from such a hybrid queen possessed such varying characteristics that selective breeding in a satisfactory way could not be accomplished as with pure stock. Therefore the yard of hybrids as a whole was not as good as the yard with the select-bred blacks. The improvement in a race of bees is, therefore, much easier and more certain with a pure race to begin with than if a strain is composed of several crosses.

Heads of Grain
from different fields

IN MEMORIAM.

Resolution passed by the stockholders of the California National Honey-producers' Association at their regular annual meeting, Feb. 15, 1905.

Whereas, it has pleased the great Ruler of the universe to remove from our midst our esteemed president and brother bee-keeper, Geo. W. Brodbeck, therefore be it resolved that we sincerely mourn our loss, and will long cherish his name and remember his many kind deeds and persistent endeavors in behalf of ourselves and bee-keepers at large. We hereby tender our sincere sympathy to the bereaved. May the softening influence of time remove the grief and simply leave happy thoughts of his kindly life.

Geo. L. Emerson,
T. O. Andrews,
G. F. Merriam, Com.

SOMETHING FROM A MISSIONARY IN THE BARBADOS; WHY A NEWLY INTRODUCED QUEEN IS LIABLE TO BE BALLED.

In an issue in November, I notice reference in the department "Our Homes" to unkind criticism of this department. It may possibly interest you to know how I became a bee-keeper.

One day I called on a parishioner; and as he was long in making an appearance I took up a periodical from his table and dipped into it. It was a copy of Gleanings, and I was sorry when I heard my friend coming out. However, I borrowed every copy he could lend me. I became a bee-keeper in consequence, and was led thereto not only by the interest the periodical aroused, but also the wish to belong to a fraternity represented by such an organ. I have taken the greatest interest since in getting the periodical widely read, both in and out of my district, and feel it to be a help to me in my work as you kindly meant it to be.

You sent me an untested red-clover queen in October. She proved to be purely fertilized, and I am wondering whether you sent me the best queen in your yard or whether she represents the standard. Whenever I took out the frame with her on it she went on laying as unconcernedly as possible. She got killed by accident a few weeks after I had her; but she has left a daughter that takes after her in this matter. The oldest bee-keeper on the island told me the other day he never had a queen do this. A strange thing happened when I introduced her. I released her 52 hours after placing her cage in a queenless hive. I saw the bees would accept her, but could not stay to see her emerge. About four hours after, I returned and found her quite at home on a frame. I took it out and carried it off to look at her in better light. While doing so I noticed the bees grow suspicious of her, and ten seconds after they were balling her. I smoked them promptly, and she ran up my sleeve and was gone when I could turn my attention to her. I spent an hour in searching around for her, and concluded that a frog had snapped her up on falling to the ground. Imagine my surprise when, on going to the hive later, and mournfully taking out the frames, to find the queen quite hearty and at home. She evidently flew off my sleeve, and, although she had been put into the hive at night, had never come through the entrance or seen the outside, yet she found her way back, though she took flight several yards from it. But why did the bees attack her? I take it that, away from the hive, and in the open air, the wind blew off the hive scent she was acquiring, while her original scent remained. And this the smoke destroyed, making her acceptable on her return. I wonder if this is the correct view, or what was it that made them accept her, then ball her, then take her again?

W. G. HUTCHINSON.

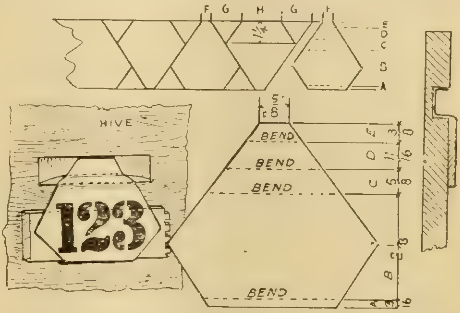
Boscobel, Barbados, Feb. 8.

[Thanks for your very kind words, dear brother. My impression is that the queen was balled because of the disturbance among the bees caused by removing the frame. In fact, I have had the same thing happen several times to a queen just introduced. It has been recommended to leave the hive undisturbed for a couple of days, say until the queen has become perfectly familiar with her surroundings. At the same time, I think it a pretty good plan to keep a little watch of things lest the queen be balled. If I opened the hive at all I think I would look in only just enough to get a glimpse of the queen and see she is all right, and wait till later before taking the frames out, etc. We should be glad to have some report in regard to the honey yield in your island. Can you tell us how it compares with Cuba, where such wonderful crops are often secured?—A. I. R.]

A HANDY NUMBER-TAG AND RECORD-HOLDER.

Along the line of "winter preparation," some of your readers may be interested in the hive-numbering tag which I and some of my neighbors have been using with much satisfaction. Taking a piece of sheet metal (preferably galvanized steel) four inches wide I cut it into pieces of the shape and size indicated in the accompanying sketch, and by the use of hard-wood blocks bend them as indicated, so that the upper portion will fit tightly into the hand-hole in the body of the hive, and the face be about $\frac{3}{16}$ inch from the face of the hive. There is room for three figures 1½ inches high on the face, and the space between it and the hive is very convenient for slipping in a piece of broken section or cardboards for records or a memorandum.

When properly shaped the pressure in the hand-hole is sufficient to hold it in place without the use of nails, staples, or any thing of the sort, and it can be quickly applied, removed, or changed from one hive to another without the use of any tool; and, when removed, there is nothing left to disfigure the hive or interfere with handling or piling. They are so close to the hive as not to interfere with the use of a telescope cover, and can be applied to any part of the hive having a hand-hole.



In storing my hives and supers in the fall I slip one of these tags in place in each pile, and then a piece of broken section, properly marked and slipped in place, always shows at a glance what each pile contains, whether empty bodies, empty supers, brood-combs, drone-combs, bait-sections, sections filled with foundation, etc.

L. R. FERGUSON.

Harvey, Ill., Feb. 20.

[I am not sure but you have devised a good thing in the way of a numbering-tag, and it may be worth our while to get up something of the kind for the general trade.—ED.]

THE BASSWOODS IN TEXAS NOT SUITABLE FOR MAKING SECTIONS; HONEY OF EXCELLENT QUALITY.

I see in GLEANINGS, page 117, that Mr. J. A. Green says basswood is abundant in Texas, and that manufacturers of sections will please take notice that these Texas basswood forests will at least put off for a while the time when there will be no more basswood sections. Now, Mr. Green, I for one think you have been misinformed, for I live in the heart of the Texas basswood country, and I don't believe there is enough basswood in Texas to supply the Root Co. for one year. There is a quite a lot of basswood in some places in Texas; but let me tell you that three-fourths of our basswood is unfit for sections. It is either crooked, hollow, or knotty; the wood is red, not white; very few good sawlogs. As for honey, it is fine, very white, of fine flavor; but on an average it fails to yield nectar about two years out of five. H. A. MICHELL.

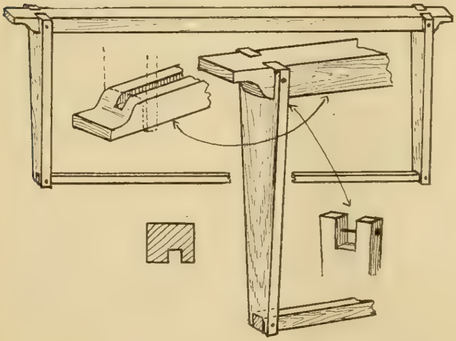
Shepard, Tex., Feb. 20.

SELF-SPACING FRAME STRONGER THAN THE HOFFMAN.

In GLEANINGS for Feb. 15 you say you are anxious to know about those frames, together with my objections. I send you under separate cover a sample of an end-bar similar to the one I used on the English standard frame (my own design) in 1884. The principal objections to the Hoffman that I find in my own use are:

1. Splitting off the shoulders of the end-bars.
2. Breaking off the ears of top-bars.
3. Frames not rigid.
4. End-bars too thin to hold nails.

This is prevented in my end-bar, first, by nailing through; second, by carrying the top-bar through the end all one thickness, and also obviating splitting, as in your way of nailing; third, the method of putting the top and end bars together.



I would myself prefer the old square bottom-bar. The objection that bees build to one side of it is more than offset by the fact that they build clear to the bottom, nine out of ten, while in the thin wide bottom-bar nine out of ten are not; but, as a matter of fact, that is not one of the crucial points.

The points that this end-bar has over the Hoffman frame are, first, smallness of contact; second, and most important, much stronger, no liability of splitting off because of the nailing holding the wide part. Making the slope on the end of the top-bar does away with the staples, the worst factor in the splitting of the end-bars.

H. FITZ HART.

Wetumpka, Ala., Feb. 24.

[I do not quite see how this particular construction of frame is stronger than the Hoffman. The end of the top-bar is almost cut off by the side notches; the projection, therefore, is no stronger than at the weakest point—the neck that slips between the prongs on the end-bar—not half so strong as it looks, in fact. We have made frames in this way; in fact, our all-wood frame that we have made for years, and are still selling, has this principle. But it was our experience that the two side edges of projection were liable to split off, either in shipping or nailing. The beveling on the under side of the top-bar would hardly be as good as a staple, as the bees would glue it to the rabbet much more securely than they could the staple to the rabbet. We tried this plan in a limited way a few years ago; and while it was better than having a top-bar project full length, it was not *enough* better, in our opinion, to warrant the change.

The end-bars to the present Hoffman frames are made considerably thicker now than they were a year ago. It is now possible to nail this particular frame either way—through the top-bar downwardly into the end-bar or in the usual way. Or, if it is preferred, drive a nail through the top of the end-bar, as shown in the sketch above, taking in the neck or tenon of the top-bar.—ED.]

YELLOW PINE FOR BEE-HIVES; INCREASE BY THE SOMERFORD METHOD, ETC.

1. Will bees stay in hives made of yellow pine?

2. To increase by the Somerford method, can I cage the queen of a colony and hang this cage (containing the queen) in the hive, and expect queen-cells started?

3. All bee-keepers around here do not practice giving the super of the old colony to the newly hived swarm; but if I attempt to do so, would I not get more honey if I left it where it was, namely, on the old hive?

Findlay, O., Feb. 11. W. H. DREYER.

[1. Bees have no objection to yellow pine, so far as I know; but the wood for hives is not as acceptable to bee-keepers on account of its weight, and disposition to ooze out pitch.

2. Queen-cells would undoubtedly be started if the queen were caged. A colony with a caged queen will behave precisely as if it had no queen in the hive at all.

3. Better give the super to the swarm. The old colony would be too weak to do any thing in the sections.—ED.]

BEE-STINGS AND RHEUMATISM — ANOTHER TESTIMONIAL.

When I commenced bee-keeping a sting was a serious matter to me. I was subject to attacks of rheumatism. In time I became immune to bee poison and also to rheumatism. Among a number of bee-keeper friends I don't know one who is a rheumatic. Might it not be that frequent injections of formic acid give immunity to rheumatism in all cases? JNO. D. GILL.

Phillipsburg, Pa., Mar. 1.

[Friend G., it seems pretty well settled that bee-sting poison is a remedy for *some* kinds of rheumatism; but we have had so many reports to the effect that it had no effect, we fear we shall be obliged to answer your question in the negative.—A. I. R.]

OUR HOMES,

BY A. I. ROOT.

And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GEN. 2:7.

The especial point in the above text that I wish to consider just now is where God breathed into man's nostrils the breath of life, and man became a living soul. That expression, "breath of life," often comes into my mind, especially when I have been shut up where I could not get good air; after I get outdoors in the air where it is pure and cool, and take in big long breaths, thanking God with every breath I take for good strong lungs and good fresh air with vitality and constitution to stand the breeze or draft, then it is that these words come into my mind, "and breathed into his nostrils the breath of life."

You have, perhaps, read of the increasing number of deaths from tuberculosis, especially pneumonia; and you have read that our ablest physicians say they have made no headway in combatting the disease in the last thirty or forty years. They have made some big strides in the way of *prevention*, but nothing in the way of remedy through the use of drugs or medicines. I believe some success has attended the use of oxygen; but oxygen *is air*, so it can hardly be called a drug or a medicine. I believe, however, that physicians are meeting with better success in letting patients have more outdoor air than they have been in the habit of allowing them, even when they are pretty near to death. When Mrs. Root was so low a year ago the principal thing in the way of her recovery was that she could not sleep day or night. She begged piteously to have the windows open the way she had been having them all her life—I mean in the night time; but the doctors said that, in her weakened condition, it would be almost sure to make trouble—that is, if any of the windows near the bedside were opened. We had them open more or less in adjoining rooms, but she wanted the wintry air to blow right in on her face. I believe the nurses were a little more willing to give her the cold air direct from outdoors than were the doctors. But even I myself did not dare to take the responsibility of throwing the windows open wide when it was both damp and cold. After we had got rid of the doctors (and nurses too) we had all the air we wanted, and it gave her new life, as I rather expected it would. Now, I know it is a difficult matter to decide just the amount of outdoor air a patient can stand. People have been killed time and again by sudden drafts. But our good friend Terry says it was because they had gotten into wrong habits. Had they been sleeping every night with cold air blowing right over their faces they would certainly have been in much less danger from a sudden draft. We can harden ourselves to sleep in cold rooms just as we bee-keepers become immune gradually to the poison of the bee-sting. It is a serious matter to disagree with a family physician; and one should be very careful about even *suggesting* that the doctors are wrong or did not understand their business. I believe just now, however, that all physicians are prescribing more fresh air, and *colder* air, than they ever did before. Of course, I asked the nurses a great many questions. One day at dinner I asked if there was any remedy for the whooping-cough. The nurse replied with bright vivacity:

"Yes, sir. Send the patient outdoors."

"But," I suggested, "suppose it is zero weather."

"Bundle him up and keep him outdoors as much as possible."

"But," I protested, "suppose it is damp and rainy as well as cold."

"Keep the patient outdoors just the same. Give him some work that will keep him warm, in the open air, but keep him outdoors in some way all day long; and if you can manage to have him sleep outdoors at night also, all the better."

Now, the above regimen is exactly what they are recommending for consumptive patients at the present time. A lady in our town who was threatened with consumption has been sleeping all this past winter out in an open veranda, and I am told she has received great benefit in so doing. I believe almost everybody agrees it is better to sleep outdoors; and the question often comes up, "Can we not make our sleeping-room just as *good* as outdoors by opening all the doors and windows?" Of course, this is for summer. In the winter we might open all the windows pretty wide, but hardly the *doors* also. I am inclined to think that, although a well-ventilated sleeping-room may do very well, it is not quite equal to the open air. When our ancestors came into the forest and put up their log cabins they had ventilation in spite of themselves. I can distinctly remember seeing the stars shine through between the shingles over my bed in the loft, and a good many times there was a covering of snow on the blankets in the morning. It did not do any harm, and probably did me a lot of good. I know for one thing it gave me an appetite for the milk and honey that I so greatly enjoyed about that time.

After our ancestors built some better houses, with lathed and plastered rooms, their ventilation was, perhaps, not quite so good; but with the open fireplace or the big stoves that came later, their rooms were pretty well ventilated, even if no particular pains were taken. When radiators and other appliances for warming took the place of the stoves there was more need of ventilation, but nobody seemed to think of it; and I am inclined to think nine-tenths of the people nowadays sleep in tight bedrooms with doors and windows all closed, and no thought of ventilation. Quite a number have told me that they never open a window at all—and they do not see that it does any harm. If you think nobody is sick, look at the medicines on the shelves of our drugstores, and then read the advertisements "given away free," etc. These medicine men, at least some of them, get to be millionaires too; and it must be there are sick people or they would not find so many customers.* We are a nation of people depending on poisonous drugs instead of looking for health in the way God gave life to Adam through his nostrils.

Now, I have made a discovery lately in the line of health. Terry and some of the rest of the pure-air exponents may say it is not a discovery because it is not new. But it was new to *me*, and I suspect it is new to at least *some* of the *doctors*. My discovery is this:

Indigestion, at least a part of it, is the result of breathing bad air, or, if you choose, breathing the air over again after nature has loaded it with poisonous exhalations and sent it out of your nostrils. Mrs. Root and I both of late have found it very hard to be obliged to sit in a crowded audience—at least where all the doors and windows are closed. She has a headache, and it makes me dull and stupid. As a consequence we do not go out very much evenings except to attend the evening preaching service; and as this does not last more than 20 or 30 minutes we get along even if the air is not first-class. Well, our people here in Medina have a lecture course every winter. They pay some of the great orators $100 a night; and in order to give us our money's worth the high-priced lecturer generally speaks two hours. I object and protest; but as other people do not mind it I try to put up with it. Once during the past winter a celebrated speaker came during our severe zero weather. There were several hundred people in the hall—in fact, it was pretty well crowded, but there was not a window nor a door open anywhere—at least, none that I know of. The people were crowded so close around the windows that everybody agreed a window could not be opened. I think they might have been let down a little at the top; but somebody might have made a fuss, even then. They would catch cold from the draft on top of their heads, so I put up with it and suffered torture for a pretty good hour. It seemed to me that evening that every person had a different smell; and I remember thinking it was a sad reflection on my fellow-men as well as on myself that we should be such an "ill-smelling" lot; and as this was a highly intellectual discourse we had the very cream of our people. The different smells got all mixed up, and one had to breathe this foul filth-laden air or stop breathing. I actually considered getting up and going out. I might have pretended I was sick, and it would not have been very much pretense either. I reasoned, however, that, as my appetite and digestion were excellent, and as I was in unusually good health, I *might* and thought I *would* stand it, and I did do so.*

Now, I hope you will excuse me if I mention some things that are not often discussed in print. I supposed that, after getting out in the open air, and breathing heavily of it, the foul matter would be expelled from my lungs, and that there would be no after-effects. The next day I was having my old trouble with indigestion. My bowels were all out of order, and I began to ask Mrs. Root what I had been eating that upset me. She said we had not had a thing on the table that usually disagreed with either of us. We are about alike in regard to our food. Along in the afternoon, almost 24 hours after breathing the bad air in the lecture-room, foul gases began to come up from my stomach and bowels. I stopped, and began to think. The taste and smell seemed a little familiar. Then I said, "Oh, yes! now I have it." The foul smell that came up through my mouth from my digestive apparatus was exactly the same as the evening before. The poisonous gases that were generated from so many people breathing that foul air many times over and over had found a lodging-place somewhere in my system, and nature had been trying for 24 hours to get rid of them in different ways. The discovery that I made, and which I feel pretty sure many physicians do not understand nor appreciate, is that the respiratory organs are so connected with the organs of digestion that the foul matter gets into the stomach and makes one sick. Now, the above is not a very nice thing to talk about. It is a disagreeable subject in more ways than one; and did I not feel that not only our health and strength but that *human life* depends on people having a clear knowledge of these things, I would not mention it as I have done. Some of you may say I was mistaken—it was only a notion of mine that my bowels had gotten out of order because I breathed bad air for an hour before going to bed. But just wait a bit. I *accidentally* experimented a little later, and gained some evidence of the truthfulness of my theory. Our automobile-house is a rather close building. By the aid of the steam-pipes under it nothing ever freezes there in winter. One very cold day I ran the engine inside of the building, a little while, to make some adjustments. We had been warned in automobile journals to be careful about the effects of the burned gas when allowed to accumulate in a close room. Just as I had finished my adjustments I began to feel dizzy, with a little headache; but after I got out into the open air it passed away. Toward night I had a pain in my bowels. I asked Mrs. Root again what I had eaten that should bring back these old troubles. She was sure that our food had been as before—only that which agreed with us. But I questioned, Didn't we have some pickled onions, Worcestershire sauce, or something of that sort? She replied in the negative. But I insisted that the bad breath was exactly as if I had been eating leeks from the woods around our cabin up north. Then I began to laugh. It just occurred to me that the disagreeable gases smelled more like *gasoline* than leeks after all. Gasoline fumes that I took in through my lungs in the automobile-house had gotten into my bowels, and there was a disturbance until nature could get rid of the poison by belching it up with my breath. From that time on I declared I would not put up any more with air from any bad source, especially this bad air that is a cause or *the* cause of pain and distress in the digestive apparatus.

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* The proprietors of the various medicines now advertised "free of charge," or "not a cent to pay until you are satisfied you have been benefited," get money *eventually* by persuading people that drugs may take the place of God's remedies—open air, pure water, etc.

* I believe our modern school buildings are pretty well ventilated; and I have reason to think our opera houses are intelligently planned in this respect, although I know but little of the latter from personal experience. But I am sure that our churches, unless it is those of a very recent date, are sadly wanting in this respect. Any room or hall that is liable to be packed full of human beings should have the very best arrangements for ventilation that modern science and experience dictate. I rejoice to know that such places are now so well planned for the exit of the audience in case of fire. The sad lessons we have had taught us the importance of this. Now, a lack of air may result in wholesale sickness and death by means of spreading and encouraging consumption, pneumonia, etc. It does not come all at once, like the Iroquois horror, but it may be just as deadly, after all; and when people are killed by a lack of air to breathe, there are usually months and even years of suffering, and long strings of expensive bills for doctors and nurses. Is not one almost as bad as the other?

Just one more fact in this line. For years, as you may know, I have been having an after-dinner nap. To be out of everybody's way, when I am at at home I take it in a nice dry basement. This basement is warmed by steam-pipes. When the weather is not too severe I sleep right before a west window with the breeze blowing right across my face. When it is zero weather, with a heavy wind, this window is partially or entirely closed. Sometimes when I awake from a nap I notice there is a very bad taste in my mouth, and I have wondered why it should be. After a little reflection I have found it was *always* after I had closed the window. When the window was opened so a good breeze would blow the air away from my face as fast as it was expelled from my lungs, my mouth did not have any bad taste. When the window was closed, the bad taste was back again. A bad taste in the mouth, say an acrid or metallic taste, is an almost sure indication of disordered digestion or bad stomach, as we call it. Now, it seemed then almost incredible that plenty of pure cold air should be a remedy for a "sour stomach." But I think it is true, at least in my case. A good many say, "I have tried it, but I can never stand it to sleep in a breeze or draft," You may remember that I have mentioned that Huber can not "stand" bee-stings. It is very desirable that he should work with the bees out in the apiary. But on one or two occasions the effects of a single sting was so severe and lasting we feared it might endanger his life. Well, within the past two months he has been getting bees out of the cellar, and getting a sting every day or every two or three days, in order to get his system inoculated, and he is coming out all right. Most of the stings he gets have very little effect. Occasionally a severe one brings back some of the old symptoms. My friends, you can get hardened to drafts of outdoor air just as easily as we bee-keepers become (gradually) immune to bee-stings. Of course, you want to be bundled up. Sleeping outdoors in zero weather you will probably need to cover up all but your nose and mouth.

When Wilbur Wright was working with the flying-machine last fall, in his shirt sleeves, during a pretty cool day, I declared he would take a severe cold and be laid up. He replied, "Mr. Root, I shall never take cold in working in the open air, even if I do get pretty well chilled. I have been having the grip, but I do not fear that working out here will make it any worse. The thing that gives *me* a cold is sitting in a room that is unpleasantly warm." And I think Mr. Wright *is* right (?), and his experience will apply to a great lot of us. We take cold when sitting in rooms that are too warm; but very rarely by getting cold—at least where we are at work at something.

I am taking two floral journals, and I read them with great interest. One of our brightest teachers, Mr. William Scott, was speaking of how much plants were benefitted by being close to the glass. He said he did not accept the usual explanation, that it was because, the closer to the glass they got, the more light they got; for in a large house there is just as much light ten feet from the glass as close to it. His suggestion is this: Plants as well as animals require *fresh air* They will not thrive without it. Our greenhouses are warmed by means of iron pipes, and we make our houses as tight as we can to keep out the frost; but in spite of our putty and nice workmanship there is more or less air getting around the edges of the glass. The plants get this fresh air when close up to the glass; and it is this and *not* the light that makes them thrive. You people who are growing stuff under glass have found out that insects, fungus, rot, and other diseases will always thrive in stagnant air; but good ventilation, especially spraying with water at the same time, not only in every corner of your greenhouse but on the under side of the leaves of the plants where they stand close together, is the very best remedy for any kind of "sickness" or lack of vitality in growing greenhouse stuff. Fresh pure air and water are better remedies than all the poisons and fumigations. It is *God's* remedy. He made us of the dust of the earth, and this dust *will* cling to us more or less if we do not look out. From the dust of the earth he raised us up, and we became living souls by the breath of life through our nostrils. The same breath that gave mankind life at its birth will help us to keep and prolong that life, not only for the *personal* benefit but for the benefit of those round about us.

May God be praised for this ever present remedy for so many of our ills; and may he give us grace and wisdom to make better use of it.

HIGH-PRESSURE GARDENING

BY A. I. ROOT.

THE SEEDLESS APPLE BOOMED BY THE SCIENTIFIC AMERICAN.

The *Country Gentleman* bears down fully as hard as I did on the *Scientific American* in regard to the seedless apple. See the following, clipped from its latest issue:

> We have noticed with sincere regret the article in question regarding the seedless apple. This is evidently written by some one interested in the promotion of the company, or else by a man who is easily taken in by the promoters. Many of the statements are copied almost verbatim from the prospectus circulated by the stock company. This certainly looks suspicious, and we think it fair to regard the article as not scientifically authoritative, even if it does appear in a journal of high scientific standing.

Since the above was in print we find in the *National Fruit Grower*, St. Joseph, Mich., a write-up of the seedless apple. It fills six columns (each 12 inches) and part of the seventh. It is true, the article is a contributed one, the writer living in England; but after searching the *Fruit Grower* all through I can not find a single line from the editor to suggest that our experiment stations have pronounced the apple poorer in quality than even the Ben Davis. This long and misleading article booming the Spencer apple is very careful not so say a word in regard to its *quality*. The question naturally arises, Is the *National Fruit Grower* (so well gotten up) for the benefit of its publishers or for its subscribers—those who pay their dollars for it? The same way with the *Scientific American.*

ANOTHER APPLE STORY.

Something over twenty years ago a traveling nurseryman sold me a dozen fruit-trees. The man who ordered them had not called for them, and as they were good-looking trees at a reduced price I set them out close by where a dwelling-house was built later. I paid so little attention to the labels that when the trees began to bear we did not have any name for them. But the Pomological Department at Washington, after receiving specimens, said that one of them, a sweet apple, was *Winter Paradise.* As the apple was corky and slightly bitter we had a good deal of sport about our "Paradise" apple. After it got to bearing it was always full; and as we considered them of no use we gave them away to the boys and neighbors. I think we put a few in the cellar, but nobody seemed to notice them particularly. Last fall the tree was loaded, and we talked about giving them to anybody who would pick them. I finally directed one of our men to pick a dozen bushels of the largest. The tree was so heavily loaded most of the apples were rather small. Then I sold some of them for 30 cents a bushel. We were getting 50 cents for all other winter apples. While Prof. Green, of our Ohio Experiment Station, was looking over our apples I asked him why that should be named "Paradise." He said it was something he could not understand either. He added they had some of them at the station, but they were so bitter nobody wanted them. I think he said they gave them to the hogs.

Well, some time in January some of our people were eating the Paradise apples. I would not taste them because sweet apples always make me sick. During the severe zero weather our apples were frozen up as hard as bullets, and they remained frozen for three or four weeks. I said that, if we kept the cellar dark and cool, and let them thaw out gradually, they would be all right. Well, some varieties *were* all right, and some were not. The Winter Paradise came through the best of any unless it was Rawle's Genet. By the way, I consider the latter, as it grows with us, even poorer than the Ben Davis; but they may turn out better after they are ripe. They are certainly not ripe now, the latter part of March. Well, about the last of February, while sorting the apples over, I tasted one of the Paradise apples just for fun; and, lo and behold! it was not bitter a particle, but it was the most juicy and luscious apple "I ever tasted in my life." May be you have heard me use the same expression before. In fact, they were so exceedingly luscious I made up my mind I would take the chances of being sick, or, rather, that I would rather be sick afterward, than to be deprived of the intense satisfaction I was getting from those Paradise apples. I thought as I did when I was off in that apple-orchard in Arizona, that it could not be possible any thing that "hit the spot" so *exactly* could be harmful, and that it *must be* that God really intended apples to be a large part of man's nourishment. I ate just about as many as I wanted; and, wonderful to tell, I rested quietly all night, and experienced no bad effect at all in the morning. Mrs. Root suggested that my excellent digestion just now might stand it once, but it would not do to think of following it up. If friend Terry reads this I feel sure he will have a good laugh. I can not understand it better than any one else; but it is certainly true I ate those apples forenoon, afternoon, and a whole half-dozen in the evening, when I got tired of reading my magazines and papers, and no bad results followed at all, but quite the contrary. Now I know *why* our forefathers, years ago, called it Winter Paradise.

First, it is not good until winter is almost over; and, second, if it was not in paradise when God gave Adam and Eve that garden it ought to have been, according to my notion. It was not the forbidden fruit, surely, because bad results followed in that case, but none at all from *my* Paradise apples. As the rest of the family said they did not like them particularly I was allowed to get both happy and fat on my beautiful crisp white apples. I persuaded Mrs. Root to take half of one occasionally, but she always says she does not care for any thing that suits me to dot, especially if the *supply* is limited.

A while ago friend Terry, in his Health Notes in the *Practical Farmer*, said a certain young minister had received so much benefit from a special kind of pill, that he thought Terry ought to recommend it, telling where the pills in question could be bought, etc. Terry was laughing at the idea of recommending pills of any kind in his Health Notes. This young pastor, however, insisted that he had no end of trouble with his digestion until he got hold of these particular pills and took them regularly. Terry said if he could get hold of that young minister, and be with him a few days, he could teach him how to have good health without using *any* kind of pills. Well, now, these Paradise apples had the same effect on my health that the pills did on that young minister. I beg pardon for the illustration, however, because crisp ripe apples should hardly be named in the same paragraph with pills of any sort. Eating as many apples as I care for just before going to bed proved a wholesome remedy for any tendency toward constipation, without any thing unnatural or unpleasant at all. I beg pardon for being so explicit, but may be there are other people who have the foolish notion in their heads that they can not eat real ripe apples just before going to bed. Very likely there is something in getting your system accustomed to fruit at regular hours, something like getting immune to bee-stings, for instance.

And now I want to say to the *Rural New-Yorker* people that I am ready to join the "Apple-Consumers' League," providing they will let me have the Winter Paradise or some other apple that is equally easy of digestion. The Paradise apples are just gone. I have tried substituting the Ben Davis and some other sorts; and since nature has become so accustomed to the apple diet she manages the other kinds pretty well providing they are quite mellow and the skins are removed. May God be praised that I can score *one more* substitute for drugs and pills; and what a beautiful substitute a handsome ripe apple is, anyhow! You will find the Winter Paradise recognized and described in our standard dictionaries as well as in our fruit-books; but I fear none of them have thought to mention that they are not fit for use until the latter part of winter or early spring.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

It would seem as if this matter had been gone over sufficiently in years past; but it may be it is well to remind the world at large that our experiment stations, our agricultural periodicals, and everybody else of authority caution against spraying trees while in bloom. It not only poisons the bees but many times it does harm instead of good to the fruit-grower. Spray just before the blossoms open, and then again just as soon as the petals have fallen. We can mail a leaflet in regard to the matter on application.

GET-RICH-QUICK ADVERTISING SCHEMES.

One of our bee-keepers sends us the following, thinking I may be interested in it:

> Do you want money? Thirty to forty dollars a week on the side. An hour a day will work this business, and it will not interfere with any occupation or business that you are at present engaged in. It is a practical, easy, and pleasant business that any man can do.
>
> Works the year round. There are no dull times with it; your income is sure every day in the year, and with this easy, pleasant work you can make from $30.00 to $40.00 every week, in any county, city, or even in the country; it requires no hard work—a lady can work it. It's guaranteed to succeed or you get your money back, so you are perfectly safe.
>
> There's no talking. You don't have to get out and hustle; there is no canvassing or mail-order feature about it, neither is it portraits. You are the boss, and have nothing to buy of me; you can purchase everything in your own town, and are independent with it.
>
> No capital required. It requires practically no capital to run it, and the results are immediate. You do not have to employ any help, but can run it any evening if you can spare an hour or so. It is perfectly legitimate, honest, and practical; there's nothing about it that a gentleman would hesitate to do.
>
> It's guaranteed to work. I stand back of this scheme; and if it doesn't work for you return it and your money comes back on the next mail. The price is one dollar—all complete—everything you need to go right to making a good income for yourself. Remember, if you don't succeed, return it and get your money back.

Is not the above a hummer? Just think of fussing with ginseng, strawberries, or even bees, to say nothing about getting a living by working on a farm when such opportunities as the above are before us! It makes me think, however, of the man who told a small boy he could tame any bird by putting some salt on its tail. There were some birds off on the lawn enjoying themselves, and the boy's face brightened up at the suggestion. To carry out the joke the man furnished the boy with a handful of salt, and he started off after the birds, full of enthusiasm. But before he had got many rods he slackened up and finally came back, and, extending his hand containing the salt to his older companion, he exclaimed, "Say! you do it." And I should like to say to the man who sends out the above circular, in the language of the boy, "You do it." If our readers could see the sad letters that come to me from people who have lost their hard earnings, it would probably be a useful lesson. It is not only dollar investments, but some of our bee-keepers have lost their bees, their farms, and *their homes* by being persuaded to invest in oil stocks, coal-mines, new colonies in Florida, Cuba, South America, etc. One good friend says he was *hypnotized* or he never could have gone into such a speculation with his eyes open. He says the fellow who did it hypnotized a lot of his neighbors in the same way. After he had got their money safe and sound he forgot that he had ever known them or had any thing to do with them. And he was careful enough to have it all fixed so the law could not touch him.

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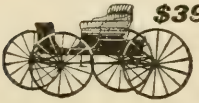

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2d prize, one select tested red-clover queen; value $2.00.
3d prize, one tested red-clover queen, value $2.00.

For the best photo of a single hive of bees, or a swarm clustered on a limb, or of any other object interesting to bee-keepers:

1st prize, one three-frame nucleus with tested Italian queen; value $5.00.
2d prize, one Danzenbaker hive complete, nailed and painted; value $3.10.
3d prize, one leather-bound A B C of Bee Culture; value $2.00.

Photos should not be marked in any way, but your full name and address should be put on a separate sheet, and *enclosed with photo*, and marked "For prize competition." Do not neglect this. Photos not winning a prize will be paid for according to the value to us, if we can use them.

Parties winning any of these prizes will be given the opportunity to make a selection of some other item if the prize awarded can not be used. The time is short, and photos should be sent at once.

TO FOREIGN READERS.

We offer for photos as above described, suitable for half-toning, the following list of prizes, separate from the foregoing, as the time limit on the above is too short to be available for foreign readers:

1st prize, one red-clover breeding-queen; value $5.00.
2d prize, one select tested red-clover queen; value $3.00.
3d prize, one leather-bound A B C of Bee Culture, value $2.00.

Time limit, July 1, 1905.

Extension of Time.

In our March 1st issue we gave particulars of the prizes offered below, limiting the time to April 1st. It now appears that the time is too short; we, therefore, extend the time to **May 1st.** The prizes are as here given.

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will devote nearly every column in April to this fascinating subject. It will teach its readers how to handle Jerseys to get highest percentages of cream and milk. You must subscribe! 25c a year.

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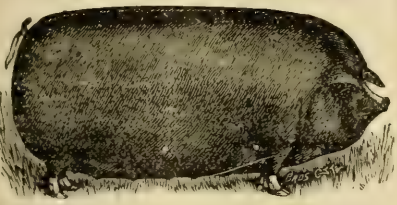

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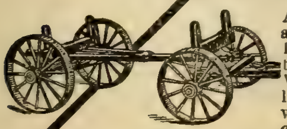

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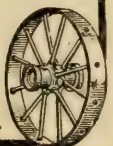

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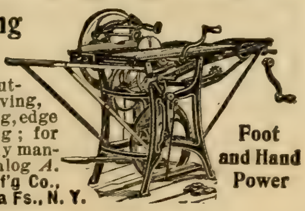

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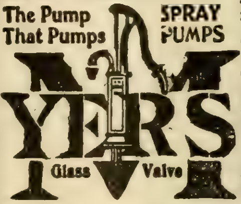

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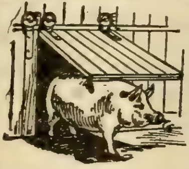

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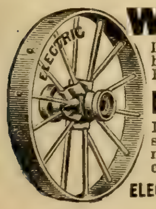

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WANTED.—Bees in South Atlantic States, where they can remain. If you have a yard that does not pay, write us. I. J. Stringham, 105 Park Place, N. Y.

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Thos. S. Work, Fort Morgan, Colo.

WANTED.—To answer your questions about Cuba for 10 cts. silver.
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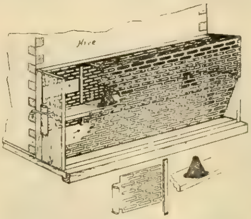

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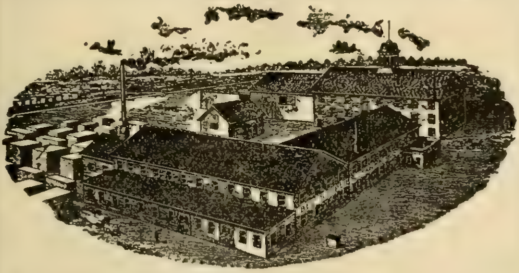

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Queens

California

With tears of sweetest joy,
That nothing can alloy,
I arise to say that
(Excuse this shabby hat)

DOOLITTLE

Has worked so very hard
That he has got a "pard"
To help him with his bees,
And if you wish to please—

Yourself and us, send for a circular giving particulars regarding our fine Italian

QUEENS

Prices for queens this season will be as follows:

	1	3
Untested	$1.00	$2 25
Tested	1.25	3.00
Select tested	1.50	4.00
Same, 1904 raising	2.50	
Select breeding	5.00	
Extra select breed.	10.00	

Prices quoted by the dozen or hundred.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

Red-clover : and : Italian : Queens

Am booking orders now for my queens at 75c for untested; tested, $1. Get my circular. Nuclei and queens a specialty. Queens ready April 15th. Let me book your order now. **G. Routzahn, Biglerville, Pa.**

A FEW

Unsolicited Testimonials Showing Kind of Stock Sent Out by Quirin-the-Queen-breeder.

Our folks say that your queens are extra fine.
The A. I. Root Co., Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was from one I purchased last year that gave me over 600 pounds of honey.
J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country.
E. L. Messenger,
53 Townsend Ave., New Haven, Conn.

The nuclei you sent J. A. Adams did just splendid. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley,
Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Bienner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.
S. A. Peck, Box 124, Northumberland, Pa.

Prices before July 1	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	.....	.....
Straight five-band breeders	6 00	.....	.....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	.....
4 frames brood, 4 frs. foundation	5 00	25 00	.....

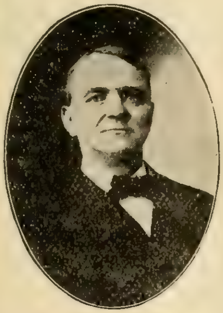
If a queen is wanted with nuclei or colonies add the price of whatever grade of stock you want. Quirin's Northern-bred Italians are hardy, and give you results. Safe delivery guaranteed to all parts of the U. S., Canada, and Cuba; foreign countries, 25 cts. each extra.

Queens Now Ready to Mail

Special prices in lots of 50 or more. Our business was established 1888. Send for circular, and address all orders to

Quirin-the-Queen-Breeder

BELLEVUE, OHIO



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LEWIS' GOODS IN CHICAGO.

Best and Most Direct Shipping Point in the World.

H. M. ARND, Manager.

Having decided to add Bee-Keepers' Supplies to our honey-business, we have arranged with the well-known **G. B. LEWIS CO.** to handle their full line of **Popular Beeware** in Chicago. We will sell at their regular prices.

Catalog and prices on honey on application. If you want **Good Goods at Factory Prices and Prompt Shipment,** send your orders to the

YORK HONEY AND BEE SUPPLY CO.

(Not incorporated—Successors to The York Honey Co.)

H. M. ARND, Mgr. **141 & 143 Ontario Street, CHICAGO, ILL.**

☞ Beeswax taken in exchange for Bee-Supplies, or for Cash.

BINGHAM Original Direct Draft CLEAN Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder

Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS Have These Latest Improvements.

RUBBER STAMPS.

Stamp your name and address on your letters. You will save yourself, as well as others, lots of trouble. A two-line stamp costs but **25c.** Many styles and prices given in our rubber-stamp catalog. Send for it to day. ¶ A stamp is neater than a label on sections, etc.

THE A. I. ROOT COMPANY, Medina, Ohio.

FREE! A Subscription to Bee Journal One Year

with order of $5.00 or over. Cheapest place in the United States to buy your supplies.

One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.

Wholesale and retail. Send for free list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee=keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey=boxes, Weed=Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.* :: :: :: :: ::

The new edition of "A B C of Bee Culture" is now here, and is ready for immediate distribution. :: :: ::

I occupy 4892 square feet of floor space, which is constantly occupied with a stock of goods. Since January 1st the Root Company have sent me two full carloads of supplies and eleven local shipments with which to complete rush orders. These nice clean goods are stacked to the ceiling, and are ready for immediate distribution. Keep right on sending in your orders as I am prepared to handle still more business with my usual promptness. Other carloads are coming.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., INDIANAPOLIS, IND.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

SPECIAL NOTICE
Special Notices
By Our Business Manager

HELP WANTED AT ONCE.

We have urgent calls for three competent men to take charge of large apiaries, one each in Nevada, California, and Georgia, and a helper in Cuba. Parties wanting positions who can give us satisfactory references as to character and ability will please write or wire us at once. Situations in Nevada and Georgia will be permanent if right man is found.

GIVING THE GROCERS PRINTED MATTER ABOUT COMB HONEY IN THE REGULAR SHIPPING-CASES.

The suggestion made by Mr. J. A. Green elsewhere in these columns along the lines indicated above is a most excellent one; and if some organization does not prepare suitable matter the Root Co. proposes to do so itself, furnishing this matter as a part of the equipment of the ordinary shipping-cases. The suggestion is a very important one and should be taken up immediately.

THE UNSATISFACTORY CONDITION OF THE HONEY MARKET; RELIEF IN SIGHT.

Several of our correspondents of late, particularly J. A. Green in this issue, have noticed the unsatisfactory condition of the honey market as evidenced by the late quotations. There can be no question but that the comb-honey lies and the talk about adulteration have had very much to do with this condition. Fortunately, relief is in sight; but I can not give particulars of it until our next issue.

Special Notices by A. I. Root.

BASSWOODS SOLD OUT.

I am sorry to tell you we are out of basswood-trees of all sizes for the spring trade; but we hope to have a good lot ready for next fall,

HOME-GROWN TESTED CABBAGE SEED.

On page 248, Mar. 1, is an advertisement of Michigan-grown cabbage seed at a very low price, for which the advertiser had not, on the 17th, received a single application. What is the matter with the cabbage business?

NORTHERN MICHIGAN BEE-KEEPERS' CONVENTION, APRIL 5, 6.

I hope to meet all of my Michigan friends, at least those in that vicinity, at the above convention. See notice on next page. This notice was, by mistake, omitted in our last issue.

THE OLDS AUTOMOBILE DURING WINTER TIME.

We have again this winter run our auto almost daily without any trouble worth mentioning from cold weather. To prevent the water from freezing so as to burst the coils we use the same solution as last winter; namely, five pounds of cheap grade of chloride of calcium, and one quart of glycerine to five gallons of water. This solution becomes thick and mushy when the temperature is down toward zero; but it does not freeze solid so as to burst the pipes or do any other harm.

JAPANESE BUCKWHEAT.

For several seasons we have been troubled to get a nice article of Japanese buckwheat, or at least enough of it to supply all demands. We are glad to tell you, however, this spring we have a big lot of extra nice seed. Prices are as follows: Trial packet, 4 ounces, postpaid, 5 cts.; 1 lb., postpaid, 15 cts.; peck, 35 cts.; ½ bushel, 65c; bushel, $1.25; two bushels, $2.25. These prices include bag to ship it in.

Of course, buckwheat is not usually put in the ground until July or August; but so many times of late years we have sold out or could not get hold of first-class seed it may be a good idea to make your purchases now so as to be sure. I suppose the price has advanced a good deal in sympathy with wheat; but it seems to me there ought to be "big money" in growing buckwheat at present prices, aside from its value for honey, to any one who keeps bees.

SUCCESSFUL FRUIT CULTURE.

The above is the title of a new book just out, well printed on nice paper, with fine illustrations all the way through. It is published by the O. Judd Co, New York, and contains 274 pages. The principal fault I should find with it is that it undertakes to cover too much ground, for it considers not only small fruits, orchard trees, and grapevines, but even has something to say in regard to sub-tropical fruits. And then there is quite a chapter in regard to fruit-growing under glass. Now, if one wants a birdseye view of all these different fruits, boiled down, as it were, this book is all right; but if he wants to go into any particular branch of fruit culture he will need other books to go with it. But this one certainly fills a very important place just now, for it brings each department clear up to the present date. The price of the book is $1.00 by mail. We can supply it from this office.

IMPROVED METHODS OF GROWING CORN.

The above is the title of a book just out, containing 160 pages. The author is J. B. Armstrong, of Shenandoah, Page Co., Iowa. The first chapter in the book commences, "Don't sell the Farm." Every thing in the book is good all the way through. It was written by a practical man and a successful farmer. I do not know of any thing I have read in a long while that is more encouraging to the farmers' boys and girls. The only fault I have to find with the book is the price, $1.00 in cloth; paper, 75 cents. At this price the book should be printed on better paper with better ink, and be gotten up more in keeping with the standard works on agriculture. J. B. Armstrong & Sons are seedsmen, and make a specialty of growing seed corn of every description, and the book is offered to every customer who purchases $5.00 worth of seed corn or other seeds. This makes it better; but I still think so valuable a book should be offered at a price low enough so it will be generally read by everybody. However, it is well worth a dollar, even if is not gotten up in as good shape as are books on similar industries.

FARM GRASSES OF THE UNITED STATES.

This is another valuable book from the O. Judd Co. It contains 250 pages, and has very fine illustrations, and is all devoted to grasses, millet, etc. Not even the clovers are included. I believe this is the first time we have ever had a book devoted entirely to the subject of growing crops for hay. It seems to me every farmer who has a meadow, little or big, can well afford to study it. It discusses all of the new and valuable grasses clear up to date; and it is much better authority than the extravagant statements that are found in many of our seed catalogs. The author, W. Jasper Spillman, is Agrostologist of the U. S. Department of Agriculture, so we know he is authority, and, best, of all, disinterested authority. There is also a chapter on lawns and lawn-making. And another, too, in regard to grass fads, cautioning farmers about being taken in with new forage plants. Let me quote as follows:

"Every few years some enterprising seedsman discovers a new forage plant that, to quote from the seedsman's catalog, 'produces eighty tons of green feed per acre, is indestructible both by fire and water, and furnishes shade in summer and shelter against the storms of winter.' Unfortunately, thousands of farmers have spent their hard-earned dollars for these much-advertised seeds, at prices that amaze those who are familiar with their actual market value, only to learn that they are worthless weeds, or some old and well-known forage plant that is masquerading under a new name."

I had to smile a little when I read the above, especially when I remembered my own experiments and what I had written up in this journal in regard to "*Lathyrus silvestris*" and "sacaline."

GOOD NEWS FOR POTATO-GROWERS.

I do not mean, friends, that the present low prices of potatoes are good for the grower. but I refer to the excellent books and periodicals we have, clear up to date. First, the issue of the *Practical Farmer* for March 25 is a potato special. There were 116 articles sent in for this potato special, and submitted to T. B. Terry to select the best and go over them and prepare them for print. I suppose friend Terry is as good authority on potatoes as any man living. In fact, I do not know of another man who has ever done as much to make potato-growing a success. Well, this special number is *potatoes* from beginning to end. There are 18 or 20 pages containing letters from those who have made a success with potatoes. Then there is a summary at the end of it all. Now, it would be a splendid thing for every potato-grower to subscribe for the *Practical Farmer;* but if you do not do that you can certainly send five cents for this special potato number. It ought to be worth a dollar to every man who grows an acre or more of potatoes. Address the Practical Farmer Co., Philadelphia.

Besides the above, the O. Judd Co. has just gotten out a new potato-book of 200 pages, fully illustrated, called "The Potato." This book is more of a scientific treatise than our own by T. B. Terry. It is largely a report of the results arrived at by our various experiment stations, by Samuel Fraser, Assistant Agronomist, Cornell University. In our own A B C of Potato Culture, T. B. Terry and your humble servant tell what they have done and what they have seen. There is a good deal of "I" about it. This new book has so little of the "I" that it is hard to tell what the author has ever done or ever seen in the way of potatoes. He simply makes statements. Here is one of them: "Plowing under rye does not diminish scab, as has been stated." For his authority in the above statement he quotes the Geneva, N. Y., *Bulletin.* Now, I think it would have been very much better for Prof. Fraser and the Geneva people also to have said rye was of no benefit in diminishing scab in *their* locality, or so far as *their* experiments extended. I have made experiments of my own, covering a period of years, and I have visited large potato-growers in our own vicinity who have tested plots repeatedly side by side where rye was plowed under. The results were, in quality and quantity, such as hardly to admit of discussion. The experiment stations are splendid institutions, and they may settle questions pretty well for their own localities. The book also states that sulphur is of little use on infected lands. Here I can entirely agree with them, for I purchased a whole barrel of sulphur on the recommendation of the *Rural New-Yorker;* but I would not for a moment think of saying that sulphur does no good with other people just because it failed on our land. I am satisfied sulphur is sometimes a benefit just from what other people say, even though it does us no good here. This book gives a vast amount of valuable information not found in any other potato-book, and I think every potato-grower ought to have both books and study them thoroughly, year after year.

The above book is furnished by the O. Judd Co., or it may be mailed from our office. It is a very nice book for the reasonable price of 75 cts., postpaid.

FLYING-MACHINES UP TO DATE; WRIGHT BROTHERS STILL AHEAD.

Since my write-up of this invention a great amount of correspondence has come in, and many newspaper sketches, extracts from magazines, etc., for which I am exceedingly obliged. But some of the friends seem to have overlooked the fact that this flying-machine I am talking about flies of itself without any balloon to sustain it. Flying-machines held aloft by the aid of a balloon are comparatively old. Such experiments are being made across the ocean, in California, and all the world for all I know.

It was recently stated through the papers that a man in California, with a flying-machine that weighed only 42 pounds, had ascended 2000 feet by its own power. Investigation reveals, however, that it was a *gliding-machine* instead of a flying-machine that made the trip; and in order to make it a hot air baloon lifted the machine 2000 feet in the air and then let it drop. The operator managed it so as to sail like a bird, and was 18 minutes in coming down. No doubt some credit is due him for operating successfully a gliding-machine; but the Wright Brothers stand alone, I believe, in having a machine that flies like a bird, and may go with the speed of a bird, without anything like the expense of the balloon or air-ships. So far none of my correspondence has revealed that anybody *ever before* made a machine that would fly a single rod and carry a man to manage it. If such a thing has been done before, let us have the documents to show it.

From a letter just received from the Wright Brothers we are pleased to learn they are planning a machine for 1905 that will carry a passenger besides the operator. They did not say the passenger might possibly be A. I. Root (for, say, "one trip"), but my imagination caught on to it nevertheless.

Convention Notices.

The Western Illinois Bee-keepers' Association will hold their spring meeting at Galesburg, on April 5, all day, in the county court room. Our meetings are more interesting each time, and with the aid of bee-keepers in this vicinity we will continue having profitable meetings, and all who are interested in bee-keeping are invited to come and help and be helped.

Galesburg, Ills. E. D. WOODS, Sec.

The annual convention of the Northern Michigan Bee-keepers' Association will be held in Lady Maccabees Hall, at Central Lake, on Wednesday and Thursday, April 5 and 6. Central Lake is centrally located, easily accessible from all directions, and we expect a good attendance of bee-keepers. Hotel rates will be, The Tavern, $1 50 per day.

As officers of the Bee-keepers' Association, we earnestly solicit your attendance, and if it be impossible for you to be present, please consider whether it is not in your interest to become a member by sending your dollar. This payment makes you a member for one year of both the Northern Michigan Association and the National Bee-keepers' Association giving you a chance to participate in any benefits these associations may confer on their members

Editors A. I. Root, Medina, O., and W. Z. Hutchinson, Flint, Mich., will be present; also E. D. Townsend, Remus, Mich., Geo. E. Hilton, Fremont, Mich., and a number of practical apiarists of Northern Michigan. If you have never attended a convention let us suggest that you try it for once, and you will have a higher opinion of your calling. "In union there is strength" is as true with bee-keepers as others, and if we can get a good strong association we can accomplish many things which are at present not possible. Trusting that you will become one of our members, and that we may meet you at Central Lake April 5 and 6, we remain yours truly,

GEO. H. KIRKPATRICK, Pres.,
W. MOHRMANN, Sec'y,
Northern Michigan Bee-keepers' Ass'n.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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C. P. DADANT, Hamilton, Ill, Vice-president.
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PEACH TREES.—No. 1 at 3 cts.; medium size, 2¼ cts., and No. 2 at 1½ cts. each. Trees kept dormant until after May 15th. Circular free.
R. S. Johnston, Box 43, Stockley, Del.

PURE MAPLE SYRUP.—90 cts. gallon, f. o. b. Brunswick, Ohio; sample if desired.
PERRY C. KELLOGG, R. F. D. 2, Brunswick, Ohio.

FOR SALE.—Bees, honey, land, and timber.
THO. WORTHINGTON, Leota, Miss.

Carniolans a Specialty!!

ALSO breeders of Golden and Leather Italians. One untested queen, $1.00; six for $5.00; twelve for $9.00. Tested, $1.50. Best breeder, $3.00. Best imported, $5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free.

Carniolans.—We have bred this race of bees for twenty years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co. : Lake George, N. Y.

BEES A Big Stock Ready to Go Now QUEENS

WE WISH to say that we are now loaded with a big stock of FINE BEES and QUEENS ready to mail now; no delay—send for what you need at once. We breed the three and five banded Italians, Cyprians, Carniolans, Holy Lands, and Albinos in their purity, in separate yards five to thirty miles apart. Tested queens, $1.25 each; breeders, $3.00 to $5.00 each; untested, from either race, 75c—six for $4.00, or $7.50 per dozen. Full colonies, one, two, and three frame nuclei, cheaper than you ever bought good stocks for before. No better to be had. Write for price list FREE. Safe arrival and perfect satisfaction guaranteed, or your money returned. Prices of queens, to dealers or in large lots, on application. We can furnish you bee-hives of yellow pine at about half the cost of white-pine goods. Get our prices before you buy.

THE BEE AND HONEY CO. W. Atchley, Manager. **BEEVILLE, BEE CO., TEXAS**

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

Of the highest standard bred from our superior Golden and Leather Italian stock. Gray Carniolan queens mated to Italian drones. Our colonies with these queens reared last season have from three to four frames of brood now. All queens are large and fine

Untested queens, $1 00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 65c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1 00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

Queens——Queens

You will see I have moved. I am prepared to furnish queens by return mail. I have 100 nuclei wintered over, and am in the best fix to fill all orders in rotation of any queen-breeder in the South. I rear five-banded and three-banded only. Tested, for March and April, $1.25; untested, 85c. Give my bees a chance to please you.

Daniel Wurth, 1111 N Smith St., San Antonio, Tex.

GOOD : QUEENS

Now ready, at $1.00 each;
tested, $1 50; golden stock.

J. B. Case, Port Orange, Fla.

The CHOICEST OF TESTED QUEENS

BY RETURN MAIL

From our reliable strain of three-band Italians, which all bee-keepers know are the bees for honey. Price $1.00 each. We guarantee satisfaction and safe arrival on all queens. Send for circular.

J. W. K. SHAW & COMPANY
Loreauville, Iberia Parish, Louisiana.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

H. C. SIMPSON, CATAWBA, S. C.
MANUFACTURER OF AND DEALER IN
BEE - KEEPERS' SUPPLIES
and Breeder of Italian Bees and Queens.

SOMETHING NEW IN SUPERS

WIRE CLOTH FOR SEPARATORS

See what Doolittle says in March 1st GLEANINGS. They can be furnished only from Syracuse, New York, and at the following prices: Five supers for 4x5 sections for the ten-frame and also for the Danzenbaker hive, $5.00; ten for $10.00. Five supers for eight-frame Dovetailed hive, $4.50; ten for $9.00. The supers as priced contain no sections or foundation. ☞ Give five of them a trial.

THE A. I. ROOT COMPANY
SYRACUSE - - - - NEW YORK

Standard

POULTRY and BEE SUPPLIES

The best of every thing for the Poultry and Bee Keeper.

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Freight Rates From Toledo
are the Lowest.

BIG DISCOUNT for EARLY ORDERS

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Sixty-page Illustrated Catalog now ready for distribution. Send your name for one.

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Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

Root's Goods
AT
Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. **CATALOG FREE.**

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,

AT

SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ .˙ .˙

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. .˙ .˙ ,˙ ,˙

Bees and Queens
from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

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Money in Bees for You.
Catalog Price on

Root's Supplies

Catalog for the Asking.

F. H. Farmer, 182 Friend St. Boston, Mass.
UP FIRST FLIGHT

Root's Bee Supplies

at Root's prices, but at Baltimore instead of Medina. Send us your orders, and save time and freight. Large stock—prompt shipment.

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Wholesale up-to-date Farm Implements and Vehicles,

209 S. Charles St., Baltimore, Md.
We didn't burn out.

Dadant's

Foundation

It excels. We guarantee satisfaction. . . . .

⁂

Bee-supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII APRIL 15, 1905 Number 8

GLEANINGS IN BEE CULTURE

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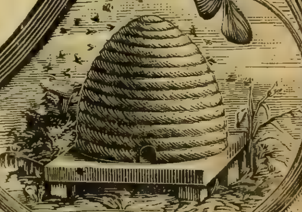

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MEDINA OHIO
U.S.A.

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CATALOG

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A full line of Root's Goods at Root's Prices. ❧ I have an overstock of Danzenbaker Hives and Supers, Ideal Supers, and Sections. ❧ Write for special prices. Also, Hilton's Specialties. Write, and order early to avoid delays and losses in the honey crop. ❧ ❧

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Fremont, Mich.

HIVES, SECTIONS FOUNDATION

We have a complete stock of

Root's Goods for Michigan Bee-Keepers

and now is a good time to place your order. ❧ Our catalog for the asking. ❧ Beeswax wanted. ❧ Remember the Danzenbaker hive, the comb-honey hive.

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BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

COMPLETE STOCK FOR 1905 NOW ON HAND.

Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A NO. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

NO. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

NO. 2.—Three-fourths of the total surface must be filled and sealed.

NO. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is. there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—There is nothing doing in comb honey. The demand is next to nothing. Some quite old stock is left on hand, some of which no doubt will not be sold before fall. A little fancy stock is moving here and there, but of no consequence. Large blocks are not being moved. Extracted honey is dull also. Large buyers are holding off, having an idea that prices will rule considerably lower when the new crop begins to come in from the South and California. For the present time we can not encourage shipments of either comb or extracted honey. Beeswax is firm and in good demand at 30.

HILDRETH & SEGELKEN,
April 8. 82 Murray St., New York City.

PHILADELPHIA.—The market is still further demoralized on comb honey since our last quotations. Good comb honey is being retailed for two for 25c, and wholesaled at 10c a cap. This will grade from fancy down, and is bought up in job lots to close out. We have no further quotations, as the market is very irregular. Extracted honey is selling as follows: Fancy white, 7; amber, 5½@6, according to quality. We are producers of honey and do not handle on commission.

WM. A. SELSER,
April 10. 10 Vine St., Philadelphia, Pa.

BUFFALO.—Honey is moving fairly well for this time of the year. Dark in comb is the only kind that sells slow. Hardly any extracted in this market, and some call for it. It is a good time to sell, for demand will be very slow as soon as warm weather and berries come. We quote fancy white comb, 13@13½; A No. 1, 12½@13; No. 1, 12@12½; No. 2, 10@11; No. 3, 9@10; No. 1 dark, 10@11; No. 2 dark, 9@10. Extracted, white, 6½@7; amber, 6@6½; dark, 5½@6. Beeswax, 27@30.

April 8. W. C. TOWNSEND, Buffalo, N. Y.

TOLEDO.—There is very little demand for comb honey at this writing, and the prices remain about the same. Fancy white clover and basswood in non-drip shipping-cases at 12½@13; A No. 1, 12; amber, no demand. The demand for extracted is very quiet. White clover in barrels, 6@6½—cans, 7@7½; amber, in barrels, 5¼@5½—cans, 6. Beeswax, 28@30.

GRIGGS BROTHERS,
April 7. 521 Monroe St., Toledo, Ohio.

CHICAGO.—The market has cleaned up quite well on comb honey. Choice white comb is selling at 12@13, and the off grades are moving freely at 9@10. Extracted is not sharing in this movement, and prices are weak at 6@7 for white and 5@6 for dark, according to flavor, body, and package. Beeswax, 29@30.

R. A. BURNETT & CO.,
April 7. 199 South Water St., Chicago, Ill.

ST. LOUIS.—The honey market has not improved in any shape or form. On the contrary, it is slower than ever during the season. Quotations are nominal and unchanged, as follows: Fancy white comb honey, 13½@14; A No. 1, 11@12; No. 1, 9@11. Choice extracted white clover or Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5@5½; in barrels, 4¾@5. Beeswax, 28½.

R. HARTMANN & CO.,
April 7. 14 So. Second St., St. Louis, Mo.

CINCINNATI.—The large stock of comb honey yet offered with hardly any demand caused lower prices. I quote fancy water white at 12; other grades lower in proportion. Extracted is in usual demand for this season of the year. We quote amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28.

C. H. W. WEBER,
April 7. 2146-8 Central Ave., Cincinnati, O.

DETROIT.—We quote as follows: Fancy white, 12½@13; A No 1 and No. 1, 11@12. No dark honey in market. Extracted white clover, 6@6½. Beeswax, 27@29.

April 10. M. H. HUNT & SON, Bell Branch, Mich.

KANSAS CITY.—The honey market still remains slow—$1.75 in some cases, $1.90 being about the top. Extracted is selling at 5@6.

C.C. CLEMONS & CO.,
April 8. Kansas City, Mo.

SCHENECTADY.—Comb honey is selling quite freely at 13@13½ for fancy; No. 1, 11@12; buckwheat, 10@11. The prices and demand for the coming month will be governed somewhat by the maple sugar and syrup production, as that usually takes preference. Extracted light, 6½@7; dark, 6@6½.

CHAS. MCCULLOCH,
March 20. Schenectady, N. Y.

TORONTO.—We have not reported the honey market for some time. as there is practically no change. What we said in the first part of the season regarding the honey market was not far from the truth. We said then that we thought bee-keepers would do well to sell at the price honey was going then, instead of holding for higher prices. The higher prices have never been realized. We paid as much as 8 cts. for No. 1 clover honey in the fall, and have recently bought by the barrel of 700 lbs. at 7 cts. Comb honey remains unchanged at $1.50@$2.00 per dozen.

March 28. E. GRAINGER & CO,, Toronto, Ont.

WANTED—Beeswax. We are paying 27c cash or 29 atnts per pound in exchange for supplies for pure av-Ciage wax delivered at Medina, or our branch houses ce 144 E. Erie St., Chicago, 44 Vesey St., New York erty, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

THE A. I. ROOT COMPANY, Medina, Ohio.

GOOD DISCOUNTS ON EARLY ORDERS
COMPLETE STOCK OF BEE SUPPLIES--LEWIS CO.'S AT FACTORY PRICES
MUTH SPECIAL HIVE THE BEST DOVE TAIL MADE
SEND FOR CATALOG.
WE ARE ALWAYS IN THE MARKET TO BUY HONEY--SUBMIT PRICE
THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
HILDRETH & SEGELKEN.
265-267 Greenwich St., New York

WANTED.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b your nearest R. R. station. UDO TOEPPERWEIN, San Antonio, Texas.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ills.

FOR SALE.—5000 lbs. choice clover honey, two 60-lb. cans per case, 7c, f. o. b. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—White honey (mostly basswood) in five-gallon cans, at 7 cts. a pound.
C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—Clover and basswood honey, in barrels, at 7c, f. o. b. Cascade, Iowa; sample by mail, 5c.
MONT WYRICK, Cascade, Iowa.

FOR SALE.—Twenty-eight 60-lb. cans of beautiful raspberry extracted honey; white as clover, and equal as to flavor; sealed before extracting; crated two cans to the crate to ship; 7¼ cts . on car; sample free.
E. D. TOWNSEND, Remus, Mich.

Convention Notices.

The spring meeting of the Middlesex Bee-keepers' Association will be held in the City Hall, London, Ont., on Saturday, May 6, 1905. E. T. BAINARD, Sec.
Lambeth, Ont., March 28.

The annual spring meeting of the Fulton and Montgomery Counties Bee-keepers' Society will be held in the city of Amsterdam, N. Y., at the Central Hotel, on Tuesday, May 2, 1905, at 10 a. m. All are invited.
West Galway, N. Y. T. I. DUGDALE, Sec.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

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Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season.
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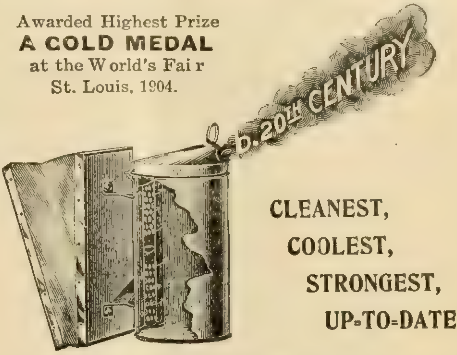
W. W. Cary & Son,
Lyonsville, Mass.

FOR SALE.—One hundred straight brood-combs in L. frames, perfectly free from disease, at 7c each.
E. D. BARTON, East Hampton, Conn.

3-FRAME NUCLEI; strong ones; May 10 to 15, $2.50, f. o. b. cars. W. T. LEWIS, Lewisburg, Miss.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

F. DANZENBAKER, MIAMI, FLORIDA.
or, Care of The A. I. Root Co., Medina, Ohio.

BEST
Bee-supplies
Lewis Goods at Factory Prices

Root's smokers and extractors, Dadant's comb foundation, Bingham smokers. We sell hives arranged with the famous **Colorado Cover**, the best cover ever put on a bee-hive. Complete hives cost you no more with this cover than with other covers, but they are better.

Where Do You Live? Let us quote prices on what you want, with freight paid to your station. We ship each year to every State east of the Rocky Mountains. Let us ship to you. **A Porter Bee-escape Free** with first order if you tell us where you saw this ad. Eighty-eight-page catalog free. Send at once.

C. M. SCOTT & CO.
1006 E. Washington St.
Indianapolis : Indiana

Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. **A. W. Swan & Co , Centralia, Kan.**

E. E. Lawrence (Box G 28), Doniphan, Mo.
Breeder of Fine Italian
QUEEN BEES. Send for price list.
Local agents for Root's goods.

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 21,000. Reaches every State and sixty foreign countries.
Established in 1873. 52 pages, semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

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E. R. ROOT, Editor Apicultural Department.
J. T. CALVERT, - Business Manager.
A. L. BOYDEN, - Advertising Manager.

TERMS---$1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, In Advance.

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Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

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Per year, postpaid, 5¼ fr.

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F. A. HOOPER, 115 Water Lane.
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H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand.
ALLIANCE BOX CO., 24 Castle St.
Per year, postpaid, 6/-.

Other names will be added from time to time.

Notices and Rates for Advertisers.

Column width, 2⅜ inches; column length, 8 inches; columns to page, 2.

Forms close 12th and 27th of each month.

Advertising rate, 20 cents per agate line, subject to either time discounts or space rate, at choice, BUT NOT BOTH.

Line Rates (Net)

500 lines @	18c
1000 lines @	16c
2000 lines @	14c

Time Discounts.

6 times	10 per cent
12 times	12 per cent
24 times	30 per cent

Page Rates (Net)

1 page	$40.00	3 pages	$100.00
2 pages	70.00	4 pages	120.00

Preferred position, 25 per cent additional.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in ten days, 2 per cent.

Reference required from all parties unknown to us.

DANZENBAKER HIVE.

"Facts About Bees," a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. **Send for it.**

THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.
You can produce better-looking honey.

QUANTITY.
You can produce more of it.

PRICE.
You can get more per pound for it.

Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

UNION BRIDGE, MD., Feb. 9, 1904.
The A. I. Root Co., Medina, O.

Gentlemen:—I saw in a recent issue of your paper that you have a department called "Reports Encouraging." I shall send you my report.

I use the Danzenbaker hive and will give you report of the same, as the few Dovetailed hives that I use do not compare at all with the Danzenbaker. One colony gave me over one hundred pounds No. 1 white honey, and the rest averaged about sixty, with an increase by natural swarming of one hundred per cent. A friend of mine who uses all sorts and kinds of hives in his apiary succeeded in making scarcely enough honey to pay for the foundation used in the sections. This was about two miles from my apiary. Long live the Danzenbaker hive. It is just the thing for this locality.

Yours truly,
J. B. HOLLOPETER.

⁂

MALLET CREEK, O., Sept. 25, 1902.

I now have 250 colonies of bees, of which 170 are in Danzenbaker hives, and shall have all my bees in Danzenbaker hives next spring. During the past poor season. 30 or 40 of the colonies in the Danzenbaker hives gave over 100 pounds surplus. On the average I get more than double the amount of honey from these colonies that I do from those in the old chaff hives. With a seven-inch telescope cover, the Danzenbaker hive winters the bees better than the chaff hives. VERNON BURT.

I have used both square and tall sections in all my apiaries five years, and I know from practical experience that it will pay to discard the 4¼ sections, and use only 4x5 sections, and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hives. I have made *more money* this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made a ton of honey. When it comes to sales, I get more for the 4x5 sections, and have no work in cleaning them. I ship them as I take them from the super. This is not the case with the 4¼ section. I make honey to sell, and anything that sells the best, and for the most money, is what I want out of the bee-business. S. D. MATTHEWS.

In Gleanings, p. 931, Dec. 15, 1899.

⁂

ROCK VALLEY, N. Y., Feb. 22, 1901.

My bees gathered no surplus after July 1. I had only 1200 pounds, but I obtained a fancy price—15½ for "Fancy" and No. 1 white, and 14½ for No. 2 here at my station for all the Danzenbaker 4x5 plain sections used on our hives, while I got only 14 and 13 cents per pound for the 4¼x4¼ square sections, and I consider that much difference is worth looking after—don't you? The Danzenbaker hives doubled up, two brood-chambers, are in fine condition, even better than my double-walled hives. I intend to build a bee-cellar and work off my double-walled hives as fast as I can, and get the Danzenbaker hives. Very truly yours, J. L. HAIGHT

The A. I. ROOT CO., MEDINA, OHIO.

To new subscribers for the American Bee Journal

Every reader of *Gleanings* should also have the *American Bee Journal* EVERY WEEK. In order that those who are not now getting the *American Bee Journal* may give it a thorough "trial trip" at small cost, we make these two offers for **new subscribers.**

Three Months, 20c; or the Rest of 1905 for 50c

Sample Copy Free

Cut out this ad., fill out the blank below, and send it to us with either 20 or 50 cents, as you may decide. . . . . .

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ills.

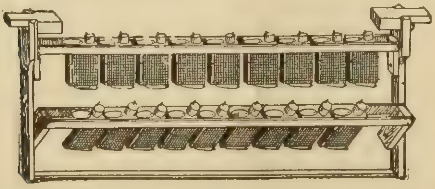
Find enclosed............cents for the weekly American Bee Journal as per above offer to a new subscriber.

Name...

Postoffice................................. *State*...................

THE ROOT QUEEN-REARING OUTFIT.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success. Outfit comprises three cell-bars with fifty waxed wooden cells, 1 frame cages (20); one cell-forming stick; one set grafting-tools, and a book on queen-rearing, $4.50.

Tools for Queen-breeders.

Wood cell-cup, with point for attaching to bar, 50c per 100; $4.00 per 1000.

Same, waxed ready for use, 75c per 100: $6 00 per 1000.

Titoff wire nursery-cages, 15c each; $1.35 for 10; $12.50 per 100.

Frame for holding 20 cages, including cages, $3 00.

Cell-stick, each 10c; $1.00 per dozen.

Transferring-needle, double-ended and nickel-plated, 15 cents.

Jelly-spoon, nickel-plated, 15 cents.

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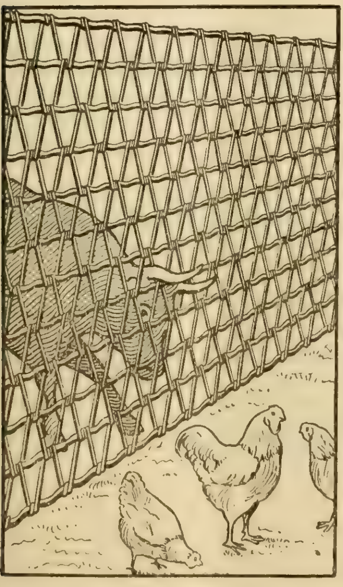

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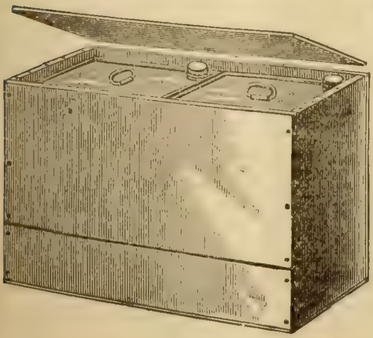

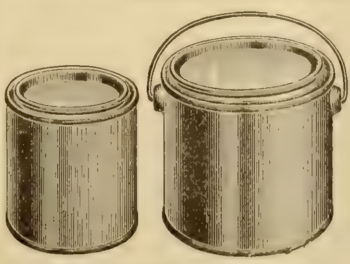

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A Journal Devoted to Bees and Honey and Home Interests
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Stray Straws

By Dr. C. C. Miller.

A. I. ROOT, I'm afraid you're not treating your Rawle's Genet apples right if they're not fine by the last of March. In the list of Am. Pom. Soc. they stand VG, the highest mark for excellence, and they deserve it.

COLD STORAGE for wintering bees is advocated by me, p. 354, and J. A. Green advances the same idea; but as he comes two pages later, of course he's infringing on my patent. To save any hard feelings, however, let's join forces, Bro. Green, and have the method patented under the firm name of Green and Miller, Ltd.

N. D. WEST says, p. 365, "I find people are devising various ways for spacing these frames" (Danzenbaker); what does he mean? Is there more than one way to space self-spacing frames? [I did not notice the sentence on the first reading; but since you call attention to it I am unable to say what was meant unless he referred to the different *methods* of handling those particular frames.—ED.]

G. M. DOOLITTLE, p. 368, says a dummy is no better than an empty comb to conserve heat. Some one will reply to him, "That isn't fair. Of course a dummy won't, but we use a division-board, not a dummy. A dummy has a space on all sides, but a division-board makes a close fit, and closes up that part of the hive snug and warm." It does seem as if it ought to, but if I remember rightly Gaston Bonnier showed by actual trial that the empty comb was as good as the division-board.

"A COLONY with a caged queen will behave precisely as if it had no queen," p. 372. In this locality? Not by a long way. Slower about starting cells, start a smaller number, and may start none. [I do not believe locality would have any thing to do with this problem. Either you are right or I am. My observation has led me to feel that a colony with a caged queen would deport itself in the same way as one without a queen. I remember that they have done so; but as you have had a larger experience than I, I will accept your amendment until I can test the matter further. Or, to put it in another way, you are right and I am wrong in any locality.—ED.]

SUPPOSE two hives standing side by side, facing south, which is the right hand one? If I think of myself as standing in place of the hives, facing south, the right hand will be at the west. If I stand facing the hives, my right hand will be at the east side. I've been accustomed to the latter way, calling that the right-hand hive which was at my right hand when I stood in front of the hives facing them; but I'll change if the other way is the general fashion. How is it? [I can see that there might be confusion on this point in understanding each other; but if each of us adopt one invariable rule there will be no confusion in our own practice. If, for example, I stand in front of the entrances of two hives and point to the one at my right hand, I say that is the right one. I would be likely to designate all hives in the same way.—ED.]

THIS SUMMER, Mr. Editor, when you repeat your experiments with bees on ice, it might be interesting to repeat one made years ago—I think by Dzierzon or Berlepsch. A queen was frozen and recovered. It made her a drone-layer, the spermatozoa were frozen beyond recovery. [This is exactly the experiment that Dr. Phillips did perform, but he succeeded in getting no drone-layer. If I do not forget it I propose to leave some bees on the ice for ten days. Perhaps we will put some between two cakes of ice so as to make sure they are subjected to a practically freezing temperature. I should not be at all surprised to learn that we can keep bees from five to ten days running, if at the end of every period we let them warm up and feed, then freeze again. If this thing can be continued indefinitely it would tend to show that a freezing temperature does not kill, but that when they can't feed because they are stiff and cold they starve.—Ed.]

A CONUNDRUM is offered by Bro. Doolittle, p. 369: How is it that the septum of a brood-comb can preserve 92 degrees against the frosty air at the side? Let's try. Take a dish of wax boiling hot, and let it cool. As soon as the surface is entirely congealed, touch your finger lightly on it. Not very hot, is it? Wait a while and it hardly feels warm. Punch your finger in it, and it's scalded. How could it be so cool on top and so hot below? Because it is one of the poorest conductors of heat in existence. Even that thin septum will not allow the heat to pass through. Another thing that helps is the cocoons on each side of the septum. Still another is the air in the outside cells being to a slight extent dead air. [This experiment goes a long way to confirm the statement made by Doolittle, that a brood-comb is as good as a dummy. While the dummy would prevent the warm air from escaping around the ends and bottom, it would not be as good a non-conductor as the comb, so that one quality or factor would counterbalance the other.—Ed.]

"Of course, the veterans know that bees should ordinarily be set out in the cool of the morning or evening previous—better the latter," says the editor, p. 354. Not in this locality. Days just right for carrying out are very scarce; and when one comes, the whole of the bees must be got out as soon as possible, and with limited help the work can't all be done in the cool of the morning. Carrying out in the evening is ruled out entirely. In my whole bee-keeping life I never yet knew an evening when I dared risk taking out bees for fear the next morning might bring disaster. [But, doctor, you are hazing or obscuring the *real* point I was trying to make—that when one *can* set the bees out in the cool of the morning when there is prospect of a warm day ahead, or in the evening if the weather reports indicate "fair and warm" for the next day, he should do so. I was trying to point out the *ideal* time. Of course, localities will sometimes compel us to take the time we can get; but the average bee-keeper has only a very few colonies, and it would not take more than half an hour to put them all out of the cellar, hence he might as well select the *best* time. When the weather reports indicate "fair and warm" for the morrow, and it is about the season for setting the bees out, I would set them out the evening before, so that they might quiet down and avoid considerable confusion the next morning. When the bees are put out in a warm atmosphere, fifty colonies at once, it is liable to cause confusion. Then it is not best to set them out all at once. We practice and preach Doolittle's plan as described in this issue, setting a part of the bees out at one time and the rest a week or so later. Sometimes it is an advantage to set out early. At other times it is an advantage to set out late. As it is impossible to predict what the season will be, we are sure to catch whatever advantage there may be, either in early or late setting out—in short, reduce the chance of some loss from either too early or too late setting out.—Ed.]

The Sibbald plan, which so interests the editor, p. 358, is not likely to produce the same results in all places and all hands. Let me correct a mistake that may puzzle some readers. P. 359, first column, a little below the middle, "It will be remembered that, ten days before, we had given No. 1" should read "No. 2." You express the fear, Mr. Editor, that swarming might be induced in No. 2 by the fresh accessions. I don't believe there's the least danger, but I think your fears in another direction are well founded. You fear that, when shifts are made to throw bees from No. 1 into No. 2, some will hunt up No. 1, the strain of bees having something to do with it. I doubt much difference from strain of bees; but surroundings make much difference. I judge from some experience directly in point. When No. 2 is first set with no queen and only one brood, you may count on the institution of a search for something more home-like by the bees returning to it. On an open plain, with no surrounding object of any kind, you may pretty safely count on the bees finding No. 1 and sticking to it. With plenty of surrounding objects by which to locate the old stand, there will be less danger, possibly none. When the second shift is made, you may safely count that all field bees from No. 1 will go to No. 2; *but* if no surrounding objects, you may just as safely count, if the bees are like mine, that the field bees of No. 2 will also go to No. 1. In other words, No. 1 and No. 2 will merely swap field bees. If No. 1 is moved to an entirely new location in three weeks from first shift, in many locations there would be no danger of its swarming. In my location there would be danger. In the non-swarming plan, when, after ten days, the old queen and all the brood is back on the old stand as at the start, it may be that, in Mr. Sibbald's locality and in some other localities, the bees will have no further thought of swarming. In my locality they may be counted on to swarm in most cases. I know, for I have tried it many times. I'm not trying to throw cold water; only telling what to look out for. [Perhaps if I had substituted the word *race* instead of *strains* it would have been more exact. Some experiments we conducted a few years ago went to show that black bees would find their colonies, even when shifted around considerably, while Italians would hover around the old original spot until they died. A slight mixture of hybrid blood might defeat the Sibbald plan to some extent. It seems to me a good deal will depend on having the hives *exactly alike*, so when a shift is made the bees will go, say, to the nearest south, east, or west side as the case may be—just as they had been doing before.—Ed.]

GLEANINGS FROM THE PACIFIC COAST
BY PROF. A. J. COOK, POMONA COLLEGE, CAL.

HONEY-DEW.

In a recent foreign journal I find this statement: Honey-dew is abundant when the fruit is scarce, and the tree on the decline. This would lead one to believe there is still need of more knowledge regarding honey-dew. While honey-dew may be occasionally a secretion from the plant itself, and possibly an exudation, yet practically it is always a secretion from insects, either plant-lice or scale-insects. It no doubt serves them a good purpose. They secrete this to attract wasps and bees, which insects are fond of the honey-dew, and are quick to appropriate it, as the insects scatter it upon leaf or twig. The presence of the wasps and bees serves to repel the birds, for birds do not work with pleasure where wasps and bees abound. Unless they were thus kept away they would feed upon the aphids, or scale-insects.

The honey-dew from scale-insects is almost always dark in color and rank in flavor; therefore it can never make good honey. On the other hand, that secreted by aphids, or plant-lice, is often very delicious, and honey from the same would be pronounced by the epicure as of best quality. I have never known better honey than that secured from this source. Thus while the former honey-dew honey could never be used as a table article, there would be no objection to the latter for such purposes. I once had a large quantity of the dark rank honey, which I sold to a baker who used it to make honey-cakes, and raised no objection to it. Indeed, I ate of the cakes myself, and found them excellent.

While it is true that the insects which secrete honey-dew are a great pest to vegetation, yet they are often too few in numbers to affect seriously the plant or the fruitfulness of the trees and vines. Yet it must be said that both families of these insects multiply with great rapidity, and thus their presence is usually a menace to the plants that harbor them. I have seen, however, evergreen trees covered with honey-dew, and thus thick with plant-lice, and yet the trees were in the best of vigor, and were well loaded with magnificent cones.

In almost all cases of honey-dew the leaves and twigs become very black. This black substance is usually referred to as smut. It is really a fungus that attacks and feeds upon, if we may use that term, the honey-dew. In California it is often necessary to wash oranges and lemons because of the presence of this smut. In fact, the worst insect-pests we have in California are scale-insects. A great many thousands of dollars have been expended in fighting them. Yet it is gratifying to know that the intelligence and enterprise of our people are equal to the task of their extermination.

There is one more thing that will interest all our readers. It is this, that we have found insects in several cases that feed upon these scale-pests, and by importing them into our orchards, we have been saved the further expense of fighting the scale-pests. In two cases such importation of such beneficial insects to feed upon and destroy our insect enemies has been of tremendous importance. I refer to the vedalia, a lady-bird beetle from Australia, which has entirely overcome the white or cottony cushion scale, an insect that seemed destined to wipe profitable orange culture from our State; and the other is the scutellista, a chalcid fly imported from South Africa, which, though very tiny, is fast exterminating the terrible black scale which has robbed our orchardists of thousands of dollars to hold it in check and save their trees and fruit.

WHAT IS HONEY?

I was very much pleased with Mr. Green's article. It seems to me that we better always face the truth. The truth is that we can never know the source of honey; and why, Mr. Editor, do you pronounce against honey from maple? The bees do not do so, but accept it when opportunity offers. Indeed, it is much like the nectar of flowers. It, like that, is cane sugar, and, like the floral nectar, it is flavored with vegetable extracts. I can see no objection to such honey; and even if there is, I do not see for the life of me how we are going to eliminate it any more than we can the honey-dew honey. As long as the bees have no prejudice we shall have to accept all such contributions. Even an occasional lift from some leaky sugar-barrel or molasses-keg, which has been left exposed, would not shock or disturb my conscience, taste, or sleep. I think we must define honey as the sweet that bees store in the comb, and that we can never be sure of its source.

DO BEES STORE WATER?

I was interested in a suggestion by the editor in the last Gleanings, that bees store water in the hive. I greatly doubt if this is true. I think the bees take the water to use at once. In our own case, and with all animals, water remains but a very brief time in the alimentary canal. Almost as soon as quaffed, it passes through the walls of the alimentary tube to mingle with the blood. Who of us has not proved this in his own experience? We are very thirsty, and feel that we can hardly drink too much water at the instant; yet if we drink but little, and wait a moment the desire for more is gone. This brief time measures the passage of the water to the blood. How often is the same true of horses! They come to the drinking-trough very thirsty. Given an opportunity, they will drink enough to injure them, perhaps enough to prove fatal. If, on the other hand, we give them a little and then in a few minutes we offer them more, they refuse to take it. Next to oxygen, water is the greatest requisite of all the food elements. In bees, it is the medium, so to speak, that carries all the others. No wonder that the ever active industrious bee needs water, and so hies to pool or spring. They sip the water, and it passes at once to the blood. Our knowledge of the way water acts with higher animals will convince us of this fact. It would also prove poor economy for the bees to put this into the cells where it would at once mix with the honey, only to be evaporated later.

ANOTHER DEFINITION OF HONEY.

I have often referred to honey as digested nectar. Most of our honey is floral honey, or comes from flowers. This is cane sugar, which is chemically very different from the glucose or reducing sugars. It is also less soluble and less assimilable. If cane sugar is injected into the blood it is not used, but is eliminated by the kidneys. This shows it unfit for metabolism. The same is not true of reducing sugars. Thus with all animals, ourselves no exceptions, cane sugar must be changed to reducing sugar by the digestive processes. The bees do this with the nectar, and the result is honey. Yet this definition is really an imperfect one, for, in case the bees take honey-dew, they take a reducing sugar which then, of course, needs no digestion. This really may be an argument in favor of honey-dew for bees, just as we argue in favor of honey for human food. No doubt honey is one of the most excellent sugars for us, as it is already digested, and so is no tax on the body energies. I have not a doubt that it requires less vital energy for bees to produce honey from honey-dew than from floral matter, for honey-dew, like glucose and honey, is already a reducing sugar.

THE SEASON IN CALIFORNIA.

Bee-keepers in the East will be glad to hear that California bee-keepers are all jubilant at the present time. I have now lived in Southern California over 11 years, and never in all that time have we had any thing like the prospects for success along all agricultural lines that we have to-day. This is peculiarly true in the direction of honey-production. I have just visited the canyons, and the wealth of flowers and the promise of future bloom is truly gratifying. I can see no possible chance of a honey failure the coming year. Of course, continuous cold winds are always unfavorable to a honey crop. That we should have such winds for the season through is certainly not to be expected.

Editorial
By E.R. Root

INSPECTOR Hutchinson has practically cleared the State of Michigan of foul brood, at least he doesn't know of any that exists at the present time.

I DO not now remember a more favorable spring for bees than this. Reports of good springing and good wintering have been universally favorable.

REGARDING the Sibbald non-swarming system, two different bee-keepers claim priority in a published description of the method, and both say it is all right. Particulars next issue.

PARTICULAR attention is directed to the article by E. W. Alexander in this issue, on his method for running for increase, and at the same time controlling swarming, and getting big crops of honey besides. It is not often that we publish an article which has more intrinsic merit than this.

PUNIC (TUNISIAN) BEES.

THERE has been considerable discussion of late in the *American Bee-keeper* regarding the merits of this particular race of bees, introduced some years ago by Mr. John Hewitt, of England. About thirteen years ago we tested the stocks of two different queens sent us by Mr. Hewitt; but we found them to be very undesirable, bad about propolizing* and stinging, and in every way they were much inferior (unless in the one point of honey-gathering) to Italians, and I so reported in these columns at the time. The editor of the *American Bee-keeper*, after copying this editorial, calls attention to the fact that "Mr. Root is not very explicit as to the extent of the test which was there given of these bees." As above stated, the opinion was based on two fair-sized colonies from the two queens obtained direct from Mr. Hewitt. If I remember correctly the queens were imported by Mr. Hewitt himself, and then afterward sent us. Our experience with the bees at the time seemed to be quite in line with that of Editor Cowan, as reported in the *British Bee Journal* of June 16 and July 7, 1892, and later with the article by Mr. Benton in the October *American Bee-keeper* for last year. If I am correct the Punics are nothing more nor less than the Tunisians under another name. While I admit our test was not conclusive by any means, yet because of the undesirable traits that we discovered, and were found by others, we did not think it worth while to get any more of them.

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* They not only daubed the frames, but smeared the cappings of their combs with a dirty-red glue.

If later tests of them shall prove that our earlier reports were unfair we shall be very glad to be corrected.

THE IMPORTANCE OF HAVING LAYING QUEENS IN RESERVE TO SUPPLY FULL COLONIES IN THE BROOD-REARING SEASON.

IN this issue Mr. E. W. Alexander makes the very good point that he does not like to keep his "full colonies a day longer without a queen than" he can help. This is very important. Just before the harvest, a good colony that is interrupted for a day or two in egg-laying must necessarily show up a deficit in field bees, just at a time of the year when it can least afford it. This all goes to show that the honey-producer ought to have a reserve of laying queens in nuclei ready for immediate service. The little baby boxes of bees described in this issue will meet the emergency most admirably; and right here the practical honey-producer should see the value of these miniature hives for his own use; in other words, he should rear his own queens, then have them fresh and ready to lay as soon as they are introduced. A queen just from the mail-bags requires a day or two before she can recover from the suspension of egg-laying; and the bee-keeper who is looking to the profit should see to it that his full colonies just prior to the harvest be not interrupted in their daily accession of eggs and young brood. Brood at the right time means honey, and honey means money, and money means profit.

THE MISSOURI FOUL-BROOD BILL VETOED BY GOVERNOR FOLK.

THE bee-keepers of Missouri have been putting forth strenuous efforts to get through a foul-brood bill providing an appropriation of $1000 a year and an inspector, a good deal on the plan of the excellent foul-brood law of Wisconsin. The bill passed both Houses, but unfortunately was vetoed by Governor Folk, who, it must be assumed, thought he was doing Missouri a real service. Governor Folk is a man whom all good people everywhere in the United States must admire as an honest and fearless servant of the law. His record is something to be proud of. Would there were more like him. But even the best of men make mistakes. The reason given by the Governor for this veto shows that he did not understand the nature and extent of the bee-keeping industry; and this only goes to show that it is important that bee-keepers, when a bill is pending in any legislature, also see the governor, if he has the veto power, and make sure he is fully informed of the need and object of the proposed law. If that had been done in this case, Missouri would undoubtedly have had a foul-brood law second to none of those in the United States.

We have already written Governor Folk, expressing our regrets, but saying at the same time that, if he were ever a candidate for the presidency of the United States, we should probably cast our votes for him, irrespective of his action in this case, as we believe him to be one of God's noblemen. It is to be sincerely regretted that he did not call in a few representative bee-keepers and inform himself before he took the step he did.

AN INTELLIGENT AND CONCERTED EFFORT TO ADVANCE PRICES ON HONEY; THE HONEY-PRODUCERS' LEAGUE.

ATTENTION is called to the new Honey-producers' League, a prospectus of which is given on page 437 in this issue. While I had but little or nothing to do with the formation of this new organization, I believe it to be the most intelligent movement yet inaugurated to remove the false impressions concerning both comb and extracted honey, and to advance the prices on both. While the League has been raising its funds, it has already been doing splendid service in securing retractions and fine write-ups in some of the leading papers, on the general subject of honey. For example, the New York *Evening Post*, one of the most influential and dignified dailies in the city of New York, published the usual misstatements in regard to the bee business. Two representatives of the League called on the editor and publisher and explained the facts in the case, with the result that, on April 6, he published a splendid editorial on the subject of "Zoological Morality." We have not space here to give the whole of the article, but here are a couple of sentences: "A week or two ago the *Evening Post*, which has only the most friendly feeling toward the honey-bee, was guilty of a grave injustice in its treatment of that insect. . . . There is no method for artificially sealing up the comb, and no ingredient can enter honey in the comb without the consent of the bees." The article all through is written in a most pleasing style, and occupies a great deal more space than the original item maligning our little friend the bee.

Other articles are in the hands of publishers, with a fair prospect of publication in full. You see, here is the point: When The A. I. Root Co. or any other interested party would write protesting, the publisher or editor would naturally suppose there was "an ax to grind." If he published a retraction at all, it would sometimes be even worse than the first item, or practically shove the poor bee and the bee-keeper from the frying-pan into the fire.

Perhaps it would be well to explain that the new organization has a new field, and does not in any way encroach on the territory of the National. The two will work together in harmony. If the bee-keepers of the country hold back their contributions toward this laudable enterprise they will have only themselves to blame if the honey market is not materially toned up within a year or possibly less time. So far the new League has secured several write-ups without a dollar of expense; but it can not do this long without money to help. If there is any bee-keeper who thinks that the new organization is a good thing, and that it will go any way, even if he does not help it, and that he will secure the benefits without his contribution, he will be most woefully mistaken.

ARE SUPPLY-MANUFACTURERS CHARGING EXORBITANT RATES FOR BEE-KEEPERS' SUPPLIES?

IN these days when some of the grasping corporations and trusts are charging "all the traffic will bear," extorting money out of the people, compelling railroads to discriminate against the small concerns and in favor of the big ones, inflating prices to flood the market in order that they may buy at ruinous prices—in short, conducting their business "in restraint of trade"—it would not be surprising if every corporation would be placed somewhat under the ban of distrust. We have been very much interested in reading some of the *exposes* of some of these gigantic concerns, and we must confess that our sympathies have been with the people. But there are corporations and corporations—some good and some bad. Every little while there have been various hints and suggestions that there was a bee-keepers' supply trust; that prices have been advanced away beyond all precedent, so that bee-keepers would have to go out of the business, etc. We have paid no attention to these, believing that the intelligent discriminating bee-keeping public would of itself sift the truth from fiction; but when a couple of our old-time friends get caught in the toils it is, perhaps, time for us to say something. One correspondent, I see by the *American Bee Journal*, Mr. E. A. Morgan, the A B C scholar of thirty years ago "who grew so fast," and seemed to be a special pupil of A. I. Root, makes this remarkable statement in reply to Editor York in the *American Bee Journal:* "The supply-dealers do take the statement from Washington to raise their prices on supplies, however much you try to cover it up." Editor York had already said he did not believe that any statistics from the Depart- of Agriculture going to show that there was 100 per cent profit in bees had anything to do with the recent advance in the price of bee-keepers' supplies. So far as the Root Co. is concerned, this is the first time that we ever knew such a statement had emanated from Washington. The proposition is so ridiculous on the face of it that there will be no use to argue it. That supplies have advanced has been only natural because of the advance in lumber and wages—for we are supposed to know the conditions surrounding our business as well as or better than the government.

Further on in the same paper Mr. Morgan makes another remarkable statement, or a series of them, rather. Here they are:

> But you ask, "Is it true that prices have doubled?" and ask The Farmer to give a single instance of a case in which any manufactory lists a hive at double the price at which it listed it at any previous time. This is the greatest break in your whole article. Would you please name one single manufactory that *hasn't* doubled prices on supplies? and many have trebled.
>
> I have before me bills paid in 1879, 1880, 1881: 8-frame Langstroth hive, 1½ story, nailed and painted, 75 cents. That was before the day of sections, but eight 5-pound boxes were furnished with glass sides.
>
> In 1889 hives took a drop. I bought, that year, 100 hives, 10-frame, 1½ story, in the flat, at 50 cents. When sections came on the market they were sold at $1.75 per 1000; later on, sandpapered both sides, $2.00 per 1000. This as late as 1897; since that time they have doubled in price.
>
> At the first-mentioned date honey sold in the comb at 25 cents to 30 cents per pound. In 1883 I sold my entire crop at 17 cents, and paid $1.00 each for 10-frame 1½-story hives, and $2.00 per 1000 for sections; and now, when the best comb honey must be sold at 11 to 14 cents, extracted 7 cents, delivered, they ask $2.45 for an 8-frame, 1½-story hive, and $5.00 per 1000 for sections.

Assuming, for the sake of argument, that all manufacturers of bee-keepers' supplies had doubled their prices, would there be any crime or any thing wrong, *providing* the cost of material had doubled and labor materiallly increased during the same time? But it is not true that "all the manufacturers have doubled their prices," and that "many have trebled them." To prove that one or two had done so would not sustain either claim.

Of course, we can speak only for our own company. We concede it might be *possible* to find some catalog showing that prices had doubled. Some ten or fifteen years ago there were many supply manufacturers who made their prices so low that they had to go out of business. Something like a score of them in the early days failed. They did not take into account overhead expenses, advertising, bad debts, and fixed and various other expenses. Now, if these concerns had since learned their mistake that their prices were too low to live, and *later* put them high enough so they could continue from year to year, it is conceivable that there might have been 100 per cent difference between their *first* prices and those at the present time. At all events, Editor York asks Mr. Morgan to furnish "a single instance or a case in which any manufactory listed a hive at double the price at which it was listed at any previous time." And in return Mr. York is asked in all soberness "to name *one single manufactory* that *hasn't* doubled prices on supplies, *and many have trebled.*" The first and last italics are ours. This is a strong and sweeping statement. It means that *all* the factories have doubled and many have trebled old prices. If Mr. Morgan had investigated even a little bit, which he could easily have done, he could have saved himself the humiliation of such a "bad break." If his other statements are as accurate as this he could scarcely blame his friends for believing that his prejudice has so warped his judgment that he is incapable of weighing evidence carefully and impartially. If he had compared the Root's prices as given in old files of GLEANINGS (and he is an old subscriber), or those given in our early catalogs with those given in our late catalogs, he would never have penned the sentence.

To compare prices made in old bills on hives *without stating the kind or quality* quoted, or whether they had inside fixtures or not, with hives of to-day better made, probably, and *listed in an entirely different manner*, is decidedly misleading and unfair. If he is comparing a home-made hive with a better-made factory hive as now made, he is scarcely less unfair. If he is comparing a hive made at a price that compelled the maker to suspend business or sell out, with a price on an up-to-date hive turned out by a responsible factory that has done a successful business for twenty years, and has given its employees living wages, he is again doing violence to the principle of justice and right. If he is comparing a quantity price as per the bills mentioned, with a less quantity price on goods now made, he is still open to the accusation.

The quotations in the second and third paragraphs are indefinite, and therefore irrelevant. In order to prove his most sweeping statement in his first paragraph it is up to Mr. Morgan to show by references to bills, advertisements, or catalogs, of widely separated dates from the *same firm*—not from two different ones—that prices have "doubled" and "trebled" on practically the *same goods* of the *same quality*, size, style, and quantity. Then it will be up to him to show that *all* the manufacturers (not a part of them) are guilty of the offense of doubling prices, and that *many* are guilty of trebling them. And right here, before we show that at least one company is not guilty as charged, it is proper to explain how supplies were listed years ago and are now.

So far as I know, the hives that were made and sold ten or fifteen years ago are almost entirely off the market, and new patterns, with a new method of listing, have taken their place. As Mr. York points out, it is very difficult to compare prices on hives of twenty years ago with those of to-day. We, for example, are not making a single hive that we made years ago. Moreover, the hives that were quoted in the early catalogs were, as a rule, *hives only*, without any inside furniture. No attempt was made at that time to give the practically clear stock given to-day; and it was only within comparatively late years, with some exceptions, that inside fixtures were included. Of course, prices have advanced since these inside fixtures have been made a part of the equipment.

A few years ago another advance was made by ourselves above the former advance when we included not only sections, foundation, and brood-frames, but foundation for the brood-nest, nails to nail the hives up with, and hand-hole cleats over the handholes. The convenience of having assorted nails of the right size and quantity is very great. The extra equipment, better quality of lumber, and a general advance, both in lumber and in wages, have necessarily made the price of bee-supplies higher; but that advance has only kept pace with the advance in material and labor. We have no old catalogs of other manufacturers at hand, but we have our own away back almost to the beginning of our business. As was stated at the outset, it is almost impossible to compare prices, because the articles listed are very different, and include a different equipment from those a few years ago. But I find a few articles that we offered away back in 1880 that we still furnish, made in exactly the same way as when first listed. Let us take what is known as the all-wood frame. In 1881 this frame was priced in the flat in lots of 100 at $1.75. Let us now compare the list of 1905 and see what we have. The same frame is quoted at $2.00 per 100. Between the first-mentioned date and to-day these same frames dropped down to $1.20 because of improved machinery; but between the $1.20 price and the $2.00, lumber out of which these were made advanced over 50 per cent, and labor 25 per cent, and the frames went up to $2 00.

Again we go back to 1881, the time mentioned by our correspondent, and we find one-piece sections, surfaced on one side only, a good deal the same as we make now, although, of course, not as well made, listed in our catalogs for that year at $4.50 per 1000. Again, in 1885 they were quoted at $5.00; in 1895, ten years ago, $3.00, and that price continued for several years when it advanced in 1891 to $3.50 per 1000, owing to the advance in the price of basswood which then began to take place. Basswood continued to go up, and sections jumped to $4.00, and finally reached the present rate, $5.00. When sections were selling at $3.00 we were buying basswood lumber at from half to two-thirds the prices recently paid. Then we made sections nine to the inch, while we are now making eight to the inch. The principal item of cost in sections is lumber. So that it will be seen that sections have only kept pace with lumber. Sections at $2.00 in single thousand lots? We never sold any at that price, nor did any one else very long. They either sent out very poor goods or sold out, as they could not stand the price.

Let us now go back again to 1879, the time spoken of by Mr. Morgan. In GLEANINGS for that year, page 73, we find the 1½-story ten-frame portico hive, including ten all-wood frames, section-crate, and separators, quoted at $1.90. A little later on, this hive was quoted at retail, in the flat, single lots, at $1.70. The nearest hive we have to this at the present time, a 1½-story ten-frame Dovetailed, is $2.30 in single lots; but the present $2.30 hive has foundation starters for the brood-nest, Hoffman frames with thick top-bars, nails for frames, for hive-cover, bottom-board, body, super, and all, complete. The old $1.70 hive was made of a lower grade of material, cheap frames with their top-bars non-spacing, a cheap section-crate —a hive that in nowise compares with the corresponding hive of to-day of *practically clear stock*. Considering that pine lumber has advanced over 50 per cent in price, and labor 25 per cent, I really do not see where the extortion is here. But it should not be forgotten that the hives of 1879 and early 80's contained knots—in short, a very inferior grade of lumber. Those of to-day are almost entirely of clear stock; but between 1880 and the present time there was an intermediate price, and that was just before the advance in labor and material. Turning to our catalog for 1892 we find nearly this same Dovetailed hive, without foundation starters and nails, single rates, $1.40. Comparing this price, $1.40, with the price of a similar hive to-day, and we have a price of $2.30, but this $1.40 price does not include by any means all the value represented in the $2.30 hive. The latter has foundation starters in the brood-nest, nails complete for every part, hand-hole cleats, and a far better grade of lumber, which the $1.40 hive did not have. To make the comparison fair, the $1.40 hive, if it had contained the same value as represented in the $2.30 hive, should be listed at $1.60, not $1.40, so that the real advance has been from $1.60 to $2.30, *or an advance of 44 per cent instead of 100 per cent or 200 per cent, as claimed by Mr. Morgan. Lumber has advanced over 50 per cent, so that our 44 per cent is not out of the way.*

If we compare the 50 and 100 rate on this same hive, the relative difference will be much less than the single rates as above shown.

Some may say that these particular instances showing prices picked out at different dates are *selected* to prove our side of the case. This is not the fact. They are only an average, as any one can prove by looking up.

In the line of metal goods made almost exclusively by The A. I. Root Co.; and sold to our competitors, there has been only a very slight advance, and in some cases *no advance* at all. The price of the raw material, while it has fluctuated, has advanced only slightly as compared with lumber. For example: The Clark smoker has been sold for about twenty years at 50 cents each, and has been 55 cents for the past two years; Novice honey-knife was 75 cents for twenty years, now 80 cents; No. 5 Novice extractor was for twenty years sold at $7.00 each. It is now $8.50, and made very much superior to what it was formerly. So with other extractors. There has been an advance in price of about 15 per cent, and they have likewise been greatly improved. Comb-foundation mills, of which we are exclusive manufacturers, are practically the same in price they have been for years. The 2×10 mill was sold years ago at $20.00 —now $25.00 Still *earlier* we sold the same mill at $50.00; then when we had worked out a cheaper process we reduced the price accordingly. The mills now turned out are so far superior to those made years ago at $20.00 that they hardly furnish a comparison. Parker's machine, Coggshall brushes, T tins, rabbets, comb-buckets, etc., are selling at the same prices that they have always been.

If we were actuated by the report from Washington, as stated by friend M., would we not more likely advance such articles as we manufacture exclusively and supply to other manufacturers and dealers because we more completely control the price of such goods? The fact that the greatest advances have been made in articles in which there is the widest competition ought to be evidence to any candid mind that the advance is due to other causes than a desire to enrich ourselves unduly at the expense of bee-keepers.

Every year we have been in business since 1878 goods have been sold cheaper than we sell them, and the same is true at the present time. We have always had all the business we could do, and much of the time *more* than we could do and do well. We have had opportunities to buy out competitors, but so far have absorbed none of them. We do not believe in the principle of these great trusts that swallow up the little concerns and crowd the rest to the wall. This country is large enough in every way to support a number of large and small manufacturers of bee-keepers' supplies, each one of them working on an independent basis.

It is proper to remark, too, that, during the period of intermediate prices, we were compelled to skimp the workmanship and material somewhat until we got protests to the effect that our customers would rather pay more and get better goods. We finally changed our policy, making the best goods that machinery, material, and brains could turn out, and advanced the price to cover the increased cost. We were praised for our efforts until Root's goods have a distinct reputation of their own.

There has been another statement made, to the effect that dealers' catalogs are all printed on the same type. Of course, the catalogs of the Root Co.'s dealers are printed right here at our own factory, and why should they not be? Of course, all of these dealers sell at our prices where the freights will permit.

Even our old friend E. E. Hasty has fallen into the swim of a few of the discontents. In one of his late articles he says that "a well-ordered twentieth-century hive-factory should be ashamed of itself if a single individual, without a bit of machinery, can make his own hives and make more than wages at it." Now, dear friend Hasty, are you not "hasty" in making that remark? Do you absolutely *know*, beyond hearsay, that you or any one else, using the same quality of lumber, and workmanship of exactly the same style throughout, can make "more than wages"? If it were true, it would indeed be a shame. If you can, we will make you a present of 25 of our complete hives, you to take your pick. We admit that one might make good wages if he is willing to put up with poor workmanship, and hives full of knots, loose and sound. It is not fair to compare a hive of that kind with the hives of to-day, made of practically clear stock, and fits that are guaranteed.

GENERAL
CORRESPONDENCE.

QUEENS' CAPACITY FOR EGG-LAYING.

The Size of Brood-nest for Comb-honey Production; an Interesting Experiment with a Pair of Old "Long-Idea" Hives.

BY G. M. DOOLITTLE.

In getting my volume of GLEANINGS for 1904 down ready for binding and filing away for future reference or reading, I happened to notice Dr. C. C. Miller's Straw on p. 967 of the October 15th issue, where he alludes to what I said in a previous number as "somewhat startling." The entire Straw reads as follows:

"Somewhat startling is the statement made by Mr. Doolittle, p. 925, that 9 Gallup frames, the equivalent of 6¾ Langstroths, are enough to 'entertain the best queen to her full capacity as to egg-laying.' Allowing ¾ of a frame for pollen and honey, and counting that the remaining six frames will be entirely occupied by the queen, that figures up only a little more than 2000 eggs as the queen's daily stint. Yet isn't it Mr. Doolittle who tells us that a queen goes as high as 5000 eggs in a day?"

As there are some things of more importance than the number of eggs a queen *can* lay, I should like to say something further in this matter. A very important *fact* in this case is, that what I said on p. 925 was for the *comb-honey* producer, not for the one producing *extracted* honey. But I think I hear some one saying, "Does the working for comb honey decrease the queen's egg-laying capacity any? or does the working of a hive for extracted honey have any thing to do with the capacity of the queen for egg-laying?" I answer yes, to both questions. There is something about extracting honey that causes the bees to feed the queen, or *force* her egg-laying powers to such an extent that she will give more than double the eggs, if she has *comb room*, that she will when no extracting is done, and thus a queen is coaxed to produce and develop all the embryo eggs she has in her ovaries, in the shortest possible time, while under *normal* circumstances she will be laying up to her *full* capacity when not producing half the number of eggs she does under the stimulating influences which come through the bees when the colony is worked for extracted honey. Let me illustrate:

In the latter seventies I became quite enthusiastic over what was known as the "Long-idea hive," as recommended by D. L. Adair, a prominent bee-keeper of those days. I made two of these hives, which were 4 ft. long and held 32 frames, instead of being 13½ in. long and holding 9 Gallup frames, as I was then using almost exclusively in my apiary. In the spring I selected two average colonies; and when the 9 frames were pretty well filled with brood, and covered with bees, they were set over into these four-foot hives. At the same time, I selected two other colonies as near like the first two as possible, one to be worked for extracted honey on the tiering-up plan, and the other to be worked for comb honey, the same as I had been in the habit of doing, so as to test the matter of these long hives for both comb and extracted honey, side by side with the older plans. In due time the two long hives were filled out with 32 combs each, while the other two were held down to their 9 frames each, as formerly, giving the two worked for comb honey the same number of sections each, and those worked for extracted honey the same number of combs each, and all worked to the best advantage possible. Now for the result:

When the basswood harvest arrived, the queen in the long hive (worked for extracted honey) had brood in every one of the 32 frames of comb, to the amount of about 20 combs solid full, while the one worked for comb honey, having 32 combs, had brood in only 13 combs, the same amounting to not over 9 frames *full*, the rest of the comb being occupied with honey, which ought to and would have gone into the sections had the brood-chamber of the hive been of the size it should have been. So the queen from the extracting hive was laying about 5000 eggs daily (as Dr. Miller says I admit a queen can), to where the one in the comb-honey hive was giving only about 2000, each queen evidently laying to her full capacity under their different environments, those environments being the same as the bees always allow, so far as my experience goes, under like circumstances, for I have experimented largely along these lines. All four of these queens were reared the season before, so were at their best. The one in this long extracting-hive died that fall of old age, while the other three lived to do good work for two more seasons, as my record for the different hives tells me by referring to it.

Perhaps the reader would be interested to know of the results in honey. This long hive worked for extracted honey gave 566 lbs. that season; and the other, worked on the tiering-up plan, gave 406. This shows that, with only 9 combs for brooding, the bees from the same produced as much surplus into 160 as did the 20 combs of solid brood. My idea is that the cost in honey of rearing that extra brood in the long hive was so great, right in the honey harvest, that they failed to give about 1200 lbs., which logic says they should have given, had each stored in proportion to the brood reared. But how about those worked for comb honey? The one worked with the 32 combs gave 49 lbs., with the 32 combs nearly solid full of honey in the fall, while the other gave 309 lbs., with honey enough in the 9 combs for wintering, or a total of 241 lbs. for the long hive and 334 for the nine-comb hive, counting all that was stored in sections and combs during the season, this showing that the nine-frame brood-chamber had an advantage over the 32-frame in some way, saying nothing about the nine-frame hives putting the most of theirs in a salable form. And I find that, at the out-apiary, where I use the ten-frame Langstroth-frame hive, it is a rare thing that I get more than six frames solid full of brood at any season of the year, or only about the same that I get with the nine Gallup frames. To be sure, I often have brood in the whole ten frames, but not more than enough to fill about six frames, or the equivalent of what is put in the nine Gallup frames. Now if, when working for *comb* honey, I get the amount of only six Langstroth frames *full* of brood out of ten frames, or only nine Gallup frames *full* of brood where 18, 24, or 32 such frames are used in a hive, can Dr. Miller say that nine Gallup frames or 6¾ Langstroth frames will *not* entertain the best queen to her *full* capacity in this locality? Perhaps my locality is quite different from that of others; but I am more inclined to think that, if any close experimenting is done, what is applicable to *my* locality will come very near the truth in *other* localities, along this line of the capacity of queens when the colony is worked for *comb* honey. It has always seemed to me that the proposition before the practical apiarist should be, not how many eggs a queen *can* lay, but *what size of brood-chamber will give the best results in surplus comb honey?*

Borodino, N. Y.

THE CATALPA-TREE FOR HONEY.

Also Something in Regard to the Different Species of Catalpa for Other Purposes.

BY FREDERICK D. WEBLEY.

Dear Mr. Root:—Will you or any of your readers give advice as to the variety of catalpa most desirable to grow for honey-production? On page 295, of 1904, Prof. W. J. Green, states that the hardy catalpa does not produce as much seed as the other varieties. The inference is, that it does not produce as many flowers, and therefore does not yield as much honey. Is that correct? If the hardy variety is as profitable to the bee-keeper for its yield of nectar as the others, its qualities as a timber tree, producing wood that is both light and tough, make it intrinsically more valuable. What is the honey-value of the other varieties—native, Japanese, and foreign? and what are the distinguishing features of each? Where can seed be obtained? In Santa Rosa we have a free-flowering variety, used as a shade-tree, and growing well in the streets and avenues, and producing a fair amount of honey of average quality. The seeds of this variety I inclose, and I should be glad if you can tell me what it is.

If Mr. Otto Luhdorff, of Visalia, Cal., has had any experience in growing the catalpa, and will communicate it, other readers of GLEANINGS besides myself may be interested. I should also like to hear of his experience in growing the basswood in California, which he was experimenting with, and wrote about some four or five years ago. The view given of the grove of catalpa-trees on page 2110 shows the Japanese variety to be distinct in growth and foliage from the American. Did our venerable friend and veteran bee-keeper, Jerry Wood, plant these trees for bee-pasturage or for timber? Probably only he could answer, unless the writer of the article, Frank McGlade, knows.

Santa Rosa, Cal.

[As we have had but little experience with catalpa here in Ohio, the above letter was referred to our Ohio Experiment Station, and below is the reply:]

Mr. A. I. Root:—Your letter to Prof. Green, inclosing a letter from Dr. Frederick D. Webley, of Santa Rosa, Cal., has been received. In Prof. Green's absence I will reply to the same.

I know very little about the comparative merits of the different species and varieties of catalpa for honey-producing purposes. I will give, however, so far as I am acquainted with them, the characteristics of the different species.

Catalpa speciosa, also called the western or hardy catalpa. The tree is upright in growth, with very large leaves and an abundance of bloom, although not as free a bloomer as the *C. catalpa*. The individual flowers are larger and more showy than any of the other species. The speciosa blooms at Wooster from the middle to the last of June. The bark of the older trees is furrowed, somewhat like the walnut, but not so marked; the younger trees also show this characteristic to some extent. The fruit-pod is from 12 to 18 inches in length, and ½ inch or more in diameter. The seeds are broad, and the filaments (hairy projections at ends) extend out straight.

Catalpa catalpa, also called *C. bignonoides* and southern catalpa. The trees of this species are low-branching, with long crooked limbs. The flowers are somewhat more profuse than on the speciosa, but not in the same proportion as the fruit. The flowers of this species apparently set a larger per cent of fruit than the speciosa.

The pods are from 8 to 12 inches in length, and less than ½ inch in diameter, as a rule. The seeds are not so wide as the speciosa, and the filaments are drawn toward a point at the ends.

While there are trees that are clearly defined in all of their characteristics as either the speciosa or the *C. catalpa*, there are also trees which have some of the characteristics of both. This makes the matter of identification more complex; and because of the apparent *crossing* or *variation in type* it is not safe to determine a variety by the seed alone unless the characteristics be very clearly defined, and are representative of one of the species.

Catalpa ovata (Kæmpferii) is a Japanese species, but has not been grown very generally in this country. The flowers have a yellowish cast which in itself is sufficient for identification of the species. The fruit-pods are very long and very slender. The seeds have the appearance of very much reduced speciosa seeds.

The seeds which Dr. Webley sent are of the speciosa type. He should be able to determine for a certainty from the above description whether they are speciosa or not, in which case he will need no other seed. There is but little of the catalpa seed grown in this part of the country, and all I know of is spoken for.

C. W. Waid, *Ass't Horticulturist.*
Wooster, O.

HOW TO CATCH HONEY-THIEVES.

Don't Advertise a Reward, but Get out a Search Warrant and Search for the Stolen Property.

BY ELIAS FOX.

I should like to reply to G. M. Ames, page 1161. I am of the opinion the only good to be derived from putting up a sign offering a reward for the capture and conviction of thieves would be to attract attention and encourage this class of people, as they could say, "Well, I will show him I can disregard that sign and not get caught." There is one thing certain—any one doing this kind of work is going to do it in such a manner that there will be no one to squeal on him, and he won't be foolish enough to tell of it so he could be informed upon from this source. As Mr. Ames is at a loss to know what to do, for his and others' future benefit I would say, have a search warrant issued, and placed in the hands of a competent officer, and search all suspected premises. You will doubtless say, "What proof have we, should we find honey on the premises searched?" If an officer is on to his job he will get a confession out of the guilty parties. As an explanation I will cite you a similar case we had here two years ago. An implement-dealer here in the village had bought a dressed hog, and had it upstairs in the warehouse, and the door locked every night. One Sunday morning he had occasion to go upstairs, and found the staple drawn and the meat gone. I being a deputy sheriff he came to me and asked what he should do. I told him if he would have a search warrant issued on Monday morning I thought I could find his meat; so, with little faith, he had the warrant issued on Monday morning, and handed it to me with the remark, "If you find that meat you are a dandy." I had three names of suspected parties put on the warrant, and in the second house I visited I found a small piece of meat, but could not identify it, and at the third house I found two stone jars tucked away in the corner of a small pantry, packed full of pork, covered nicely with brine, and jars covered with large dinner-plates, and a ham of meat on a shelf from which they were cutting fresh steaks. The meat in jars, to all appearances, had been packed for a month. I unpacked it and cut the largest piece in two, and cut a small piece out of the center of it, and tasted it, and it was slightly salted through. When questioned as to where he got it he stated that he got it from a certain farmer four miles out of town. I got the owner of the meat, but he could not identify it. It was then 11 A.M.; so, after dinner, I hitched up my team and drove out to see the farmer, but could get nothing definite from him, but I could see the trend of his story. Being forty miles from the county seat I phoned to the district attorney and laid all the facts before him, and he thought the fact of our not being able to identify the meat would not warrant us in making an arrest. Regardless of this, I was satisfied I had the right party, so Tuesday morning I had a subpœna issued for the farmer in question, and went out and brought him in. I had him sworn, and he testified that the suspected party had come to his place, cross lots, just before I reached there, the day before, and told him he stole this meat, and wanted him to swear that he sold it to him; but he told him if there was any honorable way he would aid him, otherwise if he was put under oath he would testify to the truth. Then I had a warrant issued, and arrested the suspect, and he confessed before I reached the justice's office with him, plead guilty, and paid his fine and costs. So I say, when crimes of this kind are perpetrated, and we have good reasons for suspecting any one, instead of setting down and putting up scarecrow notices, get after them; get the right parties, and *convict* them, and thus hold them up as an example for others, and I will guarantee there will be no more honey stolen from your yard. Elias Fox.

Hillsboro, Wis., Dec. 26.

[In some localities the putting-up of a reward of $100 for the arrest and conviction of thieves would work very well. It has served a most excellent purpose at our outyards. Prior to the putting-up of these signs we had some trouble, but that has now entirely disappeared. In other localities it would, perhaps, be best not to advertise the fact, but proceed on the plan of a search-warrant as described. I remember there was some petty thieving done in our town some years ago. An officer, armed with a search warrant, made a general search and very soon located all the stolen goods. As a result, the holder of them served time in the penitentiary.

Extracted honey and a good deal of comb honey could be so changed in form of package, perhaps, as to make its sure identification very difficult if not impossible. If each of the individual sections were stamped (which, as a rule, they are not) it might then be easy to prove ownership.—Ed.]

UNRIPE EXTRACTED HONEY.

Not Profitable to Extract; Injures Sale of Ripe Honey; How to Manage so as to Leave it on the Hive Until All is Capped.

BY E. D. TOWNSEND.

To me the great problem confronting the extracted-honey producer to-day is the quality of a great part of the honey that is allowed to go on the market. What would have been beautiful honey if thoroughly ripened on the hive according to nature, before extracting, is often spoiled by ignorance or carelessness, or, worse still, by some unscrupulous bee-keeper who extracts about as fast as the bees store it, in the hope that, by some hook or crook, he can palmo ff the stuff at the regular market price, thus gaining the price of a few extra pounds he may get by this nefarious practice.

I am not one who thinks there is an over-production of *good* extracted honey; but the great trouble is, the large proportion of unripe or poorly handled honey finds its way to the market, and this has a tendency to keep down the price of the better grades of honey.

If the extracted-honey producers could be made to see how little there is gained in pounds by extracting unripe honey, or, in other words, how little the shrinkage is between thoroughly ripened and unripe honey, there would be very much less of the latter produced. One does not have to keep a colony on the scales very long to see that almost all of the evaporation, or shrinkage, is during the first 24 hours after the nectar is carried into the hive, so not much will be gained in weight of surplus unless the combs are extracted every day—a practice that I never heard of; but there is too much extracting done at about the time the honey is capped along the top of the comb, for a little raw honey is thus mixed with the cured, ruining the flavor and body of the whole lot. One can, therefore, see how easy it is to lower the grade of a whole crop, causing it not only to sell very slowly but to hurt the sale of a good article.

What is the fraternity going to do about it? Educate? Let the bee-journals take up the cry, "A superior grade of extracted honey at a better price;" and by keeping the extra price at the front it will act as a stimulus for the production of a better article. After convincing a man that it is to his advantage to produce a superior article of honey, then the question of the sale of this superior honey comes in; but after producing a good many tons of first-class extracted honey, and selling it at from one to two cents a pound above the market quotations, I have proven that there is no difficulty concerning a market for fancy goods at a fancy price.

I will admit that there are seasons when it is hard, with any system, to produce a superior quality of honey; but these are exceptions rather than the rule.

If we keep piling on upper stories clear through the season, being careful to give empty combs only as they are needed, and finally leaving the whole bunch on the hive ten days or two weeks after the season closes before extracting we shall not run very much risk. A good many may think they can not afford to have in stock this great lot of extra surplus combs; so, although I *earnestly* advise you to make the investment, I will tell you how to produce a good fair article, and do quite a share of the extracting during the honey-flow, without so many upper stories of combs.

In the first place, supply yourself with 1½ sets of extracting-combs for each colony to be worked for surplus. If they are ten-frame size all the better; but eight-frame will do (I use eight combs in my ten-frame and seven in my eight-frame upper stories); but remember that you can not produce a good article of honey with only one set of extracting-combs to the colony. Put on the upper stories just as usual, as long as they last. If it is plain to see that the honey crop will be short, so that the 1½ sets of combs will hold it all, let them stand on the hive ten days or two weeks, as stated above. If the honey season should continue, and more comb room is needed, go to the colonies that have two upper stories, look them over, and take the first one given them to the extractor. This oldest honey should be nearly all sealed by this time, and the raw thin honey that is being brought from the fields will be nearly all in the partly full story still on the hive. It will be better to extract just enough to give the needed empty combs, for, by so doing, the honey will remain on the hive as long as possible.

While this plan will not always bring the best results, still if there were no lower grade of honey put on the market than that produced by this plan there would not be the cause for complaint that there is to-day.

In conclusion, fellow bee-keepers, if you are among those who, in the past, have produced only an ordinary article of extracted honey, and have had trouble in selling it, you are invited to come over and share the advantages of a superior system. Do not put it off, for you are losing money every year.

Aside from the extra price, one has the satisfaction of knowing he will have pleased customers, so that every pound of this superior article that finds its way on the market will cause a demand for several more pounds.

Remus, Mich., Jan. 28.

[This is good orthodox teaching, but I am sorry to say some of the veterans do not practice it, and then wonder why prices are low, or, what is worse, they can't sell again to the same place.

The tiering-up plan certainly does give a fine grade of honey; and if more bee-keepers would leave their combs on longer they generally would find a good demand and price for their extracted after their trade has become acquainted with the quality of their honey.—ED.]

THE DANZENBAKER HIVE VS. THE CONTRACTED BROOD-CHAMBER.

Explanation of the Article on Page 26, for the Benefit of Dr. C. C. Miller.

BY W. A. STEWART.

That sub-caption, "Should the brood-nest be crowded with brood?" which the editor placed over my article on the Danzenbaker hive, page 26, looked a little startling. I was afraid a hasty reading and that heading might lead your readers to misunderstand the article itself; but when I read Dr. Miller's comments, page 64, it almost took my breath away.

Say, doctor, did you suppose I was afraid of getting too much brood in the combs? We all know that GLEANINGS is a lively journal; but it is 32 years old, and we don't expect such antics as this—same old story. Write briefly to get space, then write again and explain the first letter so the experts can understand it. Seriously speaking, the problem with bee-keepers is how to get the honey and pollen placed where we want them, and enough room left for all the brood we can possibly secure. This is so well known that one would not think it necessary to repeat it in every paragraph just to keep from being misunderstood. I argued, not for less brood, to make room for pollen, but for *a full set of frames* to make room for both, because we now have a hive that works automatically, securing the different kinds of its contents in their right places.

The question is, "Does the contracted brood-nest, as described by Mr. Doolittle and others, furnish room enough for all the eggs a good queen can lay, all the pollen that the bees will gather where good pollen-yielding plants are plentiful, and a little honey to be handy for the young bees?" I think not. If I rightly understand Dr. Miller on page 967, October 15, he also thinks not; and I do not know that any one claims as much as that for it. On the other hand, if we use a wide shallow hive with ten $7\frac{5}{8}$-inch frames, the brood-nest is depressed to the right extent out of its spherical form, and the honey goes into the sections, because the natural place for it is near to and especially *above* the brood. The pollen goes into the frames because the natural place for it is still closer beside the brood; and with the pollen is a small quantity of honey which, during the early summer, is mostly unsealed, showing that it is being constantly used and renewed for the benefit of the larvæ.

The brood-nest, after reaching the bottom and top bars, is extended laterally until it includes a considerable part of the outside combs, because the bees will make room for it there, even if they have to uncap sealed honey to do so.

The plan of contracting the brood-chamber has stood the test of experience for a long time; but it has not always been satisfactory—see page 33, 1904. Here is a newer method, which it seems to me is at least worthy of a general trial.

Elkin, Pa., Jan. 28.

[We have since enlarged our journal so that it will not be so necessary to be brief as formerly. Regarding size of brood-nest, Mr. Doolittle has an article on that very subject in this issue.—ED.]

FASTENING COMBS IN FRAMES.

Sticks and Bent Wires vs. Common White String.

BY G. C. GREINER.

During all these years, especially during the first three or four of my bee-keeping, I have tried various different ways of fastening combs in frames, and have settled on what I consider the most practical method I am acquainted with.

I have two different methods, one for fastening whole combs or large pieces, as in transferring; and the other to patch up, like fastening a narrow strip at the bottom between comb and bottom-bar, where the bees failed to make the connection. To do the former I use little sticks about $\frac{1}{8} \times \frac{1}{4}$ in., as long as the frame is deep, with $\frac{3}{16}$ projection above and below. They are fastened in pairs with little pieces of stovepipe wire, bent something like the reversed letter S after the hook is bent. It takes about three inches of wire to make these hooks, which should be shaped over a form to make them all alike. A little bench, made of a common board as wide as the frame is deep, is a great convenience to help do this work rapidly. When the comb is fitted into the frame, which is done by laying the frame on the comb and cutting around inside the frame, one of the little sticks is slipped under the comb wherever the support is needed; another is laid right over it, and with two hooks the projecting ends are clasped together. It generally takes two pairs of sticks if one large piece is to be fastened; if more smaller ones, three or even four pairs may be needed.

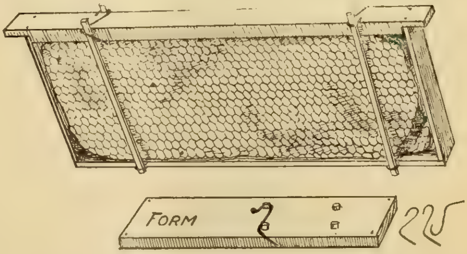


Fig. 1.

For patching up, little forks of tempered fence wire are slipped over the frame; they not only hold inserted patches in their places, but also hold the comb in the center of the frame. This is a very desirable and important feature of the movable frame. If the combs are all true and centered, all manipulations that require taking out or inserting combs are a pleasure. Any bulging out on one side or the other is liable to rub against the next comb, or, what is still worse, against the bees that may be in the way; and the consequence is generally an infuriated lot of bees to attack the operator.

The illustrations make it all plain. Fig. 1 represents a large piece of comb fastened in its place with two pairs of sticks. One of the hooks is shown as it appears when finished, and the other is left as it leaves the form. It also shows the form as seen from above. This is simply a hard-wood block with three corresponding iron pins driven into it. In cutting the wires I use a pair of tinners' shears, and cut eight or ten rings at a time; and if the pins in the form stand plumb and true, three or four or even more hooks can be bent at once.

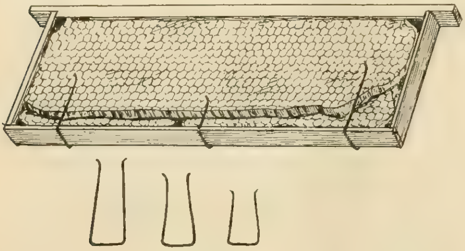


Fig. 2.

Fig. 2 shows a patched comb, the opening between comb and bottom-bar being filled out, and a piece of drone comb in the corner taken out and replaced with worker comb. Properly shaped forks or clasps are below the comb.

With a supply of these little traps on hand, transferring as well as patching up can be rapidly done. To remove them, after the bees have done the mending and fastened every thing to suit their own notion, is also a short job. When taking off the sticks a little caution is advisable to prevent possible loss of queens. The best way to do this is to hold the frame with the left hand by one corner near the ground in front of the hive, then remove the hooks by unbending the long prong, and with a rolling motion loosen the sticks and drop them carefully on the ground. When the colonies are very populous, as they generally are when such operations are performed, the combs are thickly covered with bees, and it is a common occurrence that little lumps of bees drop from the combs or adhere to the sticks; and, as the queen is liable to be among them, dropping near the entrance in front of her hive enables her to find her way into it.

La Salle, N. Y.

[We used to recommend practically both of these methods; but after winding common white string one or more times around a comb according to the number of pieces we concluded it was cheaper and better, with the additional advantage that, if we forget to remove the string after the combs were welded together, the bees would do it for us. Our transferring-clasps, instead of being made of wire were narrow strips of tin bent in the same U shape. The wire would cover up less of the comb surface, and, perhaps, would be better.—Ed.]

MICE IN THE APIARY.

How to Destroy Them Easily.

BY W. L. PORTER.

In the thirty years that I have been in the bee business mice have been a great nuisance, besides causing a good deal of destruction; and in all this time I have never been able to find a remedy that was just satisfactory until about two years ago. I have tried bee-tight houses, and poisons of different kinds, and even the faithful old cat. They all had their merits in checking the nuisance, but still I was always suffering more or less with their destructiveness. I have made several bee and mouse tight buildings, and would, though not knowing it, carry the mice in hives where the bees had died out. After they get into the building they will gnaw out, and ever afterward have a free passage in and out. When the next summer came I usually found both combs and supers much damaged. I have tried to poison them by putting strychnine in meal; and while it would kill some it never completely routed them. I have also soaked wheat in strychnine, with the same failure.

Two years ago I hit upon a formula that was effectual. It has been worth so much to me I feel that some of the readers of Gleanings may have had the same trouble, and would like to know how to get rid of the nuisance. I have been preparing a batch of poison to-day. The formula is, take ½ gallon of wheat. To this I add ⅛ ounce of strychnine, 2 pints of water, and a pint of honey. I first pound the crystals of strychnine on a flatiron, then put it in the water and bring to a boil; then add the honey. Pour the solution over the wheat and stir well. Boil the mixture for 30 minutes. To this I add two large tablespoonfuls of flour made into a paste before putting it into the wheat. I put in the paste so the wheat will adhere. I then put the mass in pans, smoothed out so it will be about half an inch thick. When it dries it will be in a hard cake. The honey and paste make it so the mice are very fond of it.

I find by keeping a piece of this poison in the store buildings which I have at my apiaries I can keep combs and sections without being disturbed, and a piece of the poison in an empty hive will do away with those that might disturb the hives in cold weather.

We have a species of wild mice in Colorado which are very peculiar in their habits.

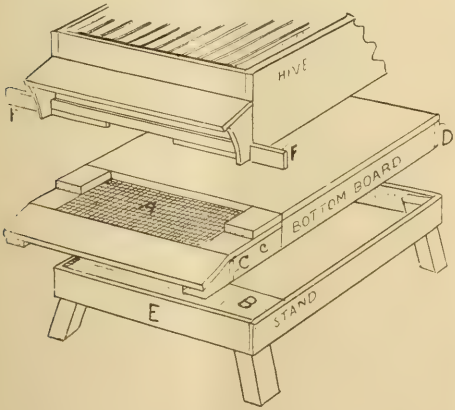
They garner the same as the squirrel. Several times I found as much as a gallon of sweet-clover seed, with all the hulls taken off, stored in an empty hive. I have found a number of cases where the same mother had two broods in the same nest, one fairly matured, and the other very young. If the poison is used judiciously there is no more trouble from mice. Of course, great care should be taken to keep it away from children and also domestic animals. It is also very effective in the home where mice are troublesome. Last September we found our house fairly overrun; and in a week after putting out the poison, the mice were all gone, and we have not heard one since.

Denver, Colo.

ANOTHER VENTILATED BOTTOM-BOARD.

BY J. GRAY.

I note a discussion in your journal regarding a simple and inexpensive method of giving ventilation. I have the simplest method —nothing to get fast. You are aware that our English hives have sunken entrances. If the board A which forms the sunken entrance be removed and let into the stand at B, when you put the floor on the stand it closes the opening; wire cloth put in place of A; the board that goes across back of floor D put in front C, to give ventilation; push your hive forward on the stand (if you want it permanent, turn your stand around back to front); to close the ventilator, pull your hive back till E touches Cc.



I can not say whether you can adapt this to your American hives, but it answers with me. I get a 14×4½ opening, and you make it 8 inches if you wish. I am wintering one stock with ventilator open, believing it will have the effect of not tempting the bees out when the sun shines too warm on the door of the hive.

Long Eaton, Eng., Aug. 2.

[The objection to wire cloth in the floor, as pointed out in a late issue, is it becomes covered up with dirt, propolis, and in very early spring, with dead bees. The Hershiser plan of wire cloth on the sides, I think would be better; for by his plan the extra ventilation can be very nicely cut off at will.—Ed.]

THE QUEEN-TRAP.

Other Methods of Hiving Swarms; Why the Trap is a Labor-saver.

BY C. H. DIBBERN.

Not many bee-keepers think they have much use for a device to trap drones; and yet when rightly used it becomes a matter of very great importance. Nothing is more important in achieving success with bees than the quality and the progeny of all the queens. It is easy enough to send to some queen-breeder for a queen or two, and introduce them, and thus secure nice industrious bees; but to improve thus a whole apiary of a hundred hives or more becomes an entirely different proposition. Now is just when the trap can be used to great advantage. Often one has a few colonies of as good bees for honey-gathering, right in the apiary, as can be found anywhere. Now select one or two such, and insert a frame or two of drone comb right in the middle of the hive; clip the queen's wings and encourage these to produce all the drones necessary for the whole apiary. No traps are to be used on these hives, but the other drones are to be vigorously trapped and destroyed. This will greatly improve the young queens and their progeny in the whole apiary; and if this plan is continued for a few seasons you will no longer think that the traps interfere with the honey-gathering.

Clipping queens' wings has become quite popular of late years, and is practiced by some of our best bee-keepers. While this method partly answers the purpose, the labor of hunting for a queen, and the uncertainty that she is still there the next time the hive is visited, is not to be compared to the certainty of the traps. Then when a second swarm comes out, how about its alighting on some tall tree or leaving for the woods? In an out-apiary this becomes a serious question. Of course, some bee-keepers seem to be able to look over all the combs in a large apiary in a few hours, and make all safe for a whole week ahead. When I tried this years ago I found it an awful job, especially when the days were hot and my time was limited. Then, too, there is no control over the drones, which ought not to be overlooked. I believe that now the plan of the queen-wing clippers is to make their increase by the shaking or brushing process. This, of course, is all right when rightly done at the proper time; but how many, especially amateurs or farmers, would do this right? And, besides, is not this too a lot of useless extra work? I have studied and practiced all the known (and unknown) methods of controlling swarming in my home apiary of 100 to 150 colonies, and at an out-apiary for over 15 years, and have found nothing equal to the queen-trap. I consider the trap described in GLEANINGS for Aug. 15, 1904, a great improvement.

In answer to numerous correspondents I will say that I will make up a limited number for sale. It is probable that the Root Co. will manufacture them. There are no patents; but it is best to get at least a pattern. C. H. DIBBERN.

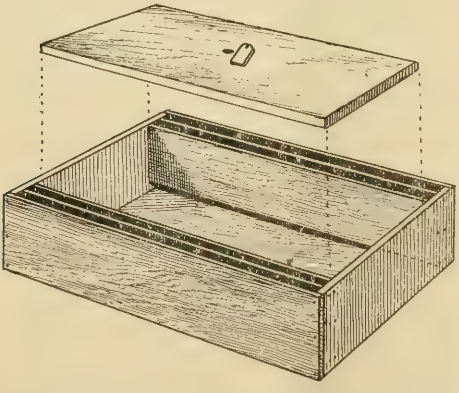
Milan, Ill., Jan. 11.

[It has been our practice to use both the clipped-wing plan and the drone-trap. When convenient to do so early in the season, when a colony is not strong we clip. If for any reason there was no clipping, and we are just on the eve of the swarming season, when the colonies are overflowing with bees, making it difficult and tedious to find queens, we clap on the drone-traps. Unless it is to repress undesirable drones we prefer to clip when we can.—ED.]

A HOME-MADE OUTDOOR FEEDER.

BY S. G. KILGORE.

I send you a sketch of an outdoor feeder of my own design that I use for stimulative feeding. It combines some of the principles of the Miller, Simplicity, and Manum feeders. To make, take a common 12-lb. shipping-case; knock off the two glass sides and replace with a piece $\frac{5}{16}$ inch thick, same size as sides. Then cut four pieces the same thickness, and place two on each side on the inside so there will be two spaces for the feed to come up in, each ½ inch wide. In putting these boards in they should be ¼ inch from the bottom of the box. Run melted paraffine around on the inside of the box to stop any leaks, and to keep syrup from soaking into the wood; and, lastly, put on a cover with a small hole in the top with a button to cover it, and our feeder is complete. No bees can drown in this feeder, and it holds much more than the Simplicity. When it needs refilling push the button back; put in the funnel, and fill. I feed up till clover blooms, and never have robbing. For larger feeder I use a 24-lb. case with three troughs for feed.



CLEATS FOR HAND-HOLES IN SUPERS.

I like the Dovetailed hive; but why don't you put molding hand-hole cleats on supers as well as on the brood-nest? There is *more* heavy lifting in handling supers full of comb honey than hive-bodies; and I think they would be appreciated by a large majority of your customers.

FULL SHEETS FOR THE TWO INSIDE FRAMES AT LEAST.

The Hoffman frames are all right; but I find with me when I use only a starter or small strip of foundation the bees almost always bulge the combs. I think it is just as they get started on the first comb. If the first comb is built crooked they will build the rest the same. Therefore I think that any bee-keeper who can't afford full sheets in all the frames should use, say, full sheets in the two center frames, and narrow strips in the rest, which would give one a set of straight combs.

COMBS BUILT IN SPACE BEHIND DIVISION-BOARD.

I had trouble last season with my bees building comb in the space behind the division-board. If I contract for comb honey, some colonies will fill this space full before going into the supers. What is the cause of and remedy for this?

London, O., Feb. 1.

[The feeder described and shown is virtually Dr. Miller's feeder adapted for use outdoors. This was described in this journal some ten or twelve years ago. But the fact that it is old in design or construction does not, of course, signify that it does not have real merit, but, rather, quite the contrary, for this same feeder has continued clear on since that time, and has been advertised in some of the supply catalogs.

We do not supply cleats for hand-holes in supers, for two reasons. First, supers are lighter in the height of the honey-flow than a brood-nest of double the capacity; second, many of the supers are put under a cap or outer case; and if hand-hole cleats were used they would interfere with this cap.

If you do not fill up the back space of the division-board with extra dummies, the bees will, in all probability, if contraction is carried too far, fill such spaces with comb instead of going up into the supers. But contraction should not be carried much further, as a rule, than the thickness of one two-inch division-board in an eight-frame hive. It is wrong in theory and practice to leave any vacant space thicker than a bee-space in the brood-nest in which the bees can store comb. Generally speaking, an eight-frame hive should not be contracted at all. The colonies that do much in the production of comb honey ought to be strong enough to fill out the entire hive without dummies. Excessive contraction has long since been proven to be a mistake.—ED.]

A CLERGYMAN AND HIS BEES.

BY CLERICUS.

[The following article was written by a clergyman who, as will be seen, is an enthusiast on bees. Knowing that he had derived real enjoyment and profit out of his pets, we asked him to prepare a short article which we could put in pamphlet form for distribution among professional men who are seeking some outdoor hobby to ride that will, between times, rest the tired brain, and give a new lease of life. As we have many of this class of people among our subscribers we finally concluded to give it a place in these columns. Even to the veteran bee-keepers the reading of it will bring back pleasant memories of olden days when they had just begun their studies among the A B C's—particularly the B's.]

"A clergyman and his bees!" What a combination! and yet how perfectly natural! for who would be better able to appreciate the phenomena of bee life than one whose life has accustomed itself to observation?

And then the diversion which their study gives to one of sedentary habits can not but be of great value physically for the many hours spent in the fresh air and sunshine in becoming acquainted with and studying the habits of these little geometers of the fields.

So great a man as Shakespeare boasted of an acquaintance with these little folk, and wrote concerning them the following lines:

So work the honey-bees—
Creatures that, by a rule in nature, teach
The art of order to a peopled kingdom.
They have a king and officers of sorts
Where some, like magistrates, correct at home;
Others, like merchants, venture trade abroad;
Others, like soldiers, armed in their stings,
Stake boot upon the summer's velvet buds;
Which pillage they with merry march bring home
To the tent royal of their emperor;
Who, busied in his majesty, surveys
The singing masons building roof of gold,
The civil citizens kneading up the honey,
The poor mechanic porters crowding in
Their heavy burdens at his narrow gate,
The sad-eyed justice with his surly hum
Delivering o'er to executioners, pale
The lazy yawning drone.

And one can almost see the Bard of Stratford some sunny morning watching the busy bees before he wrote his vivid description in which he falls into only one error, that of supposing the mother queen-bee to be a king.

Jean Ingelow must have seen a busy bee working among the hollyhocks and asters or else she could never have written—

O velvet bee! you're a dusty fellow.
You've powdered your legs with gold.

So that it is no time wasted to spend an hour among these little people who for centuries have been the benefactors of mankind.

On the ancient monuments of Egypt, in the classic writings of Rome and Greece, and in the holy Scriptures, we find many references to the honey-bee.

That the busy bee was noticed by mankind in the dim distant past is not surprising, for the ancients possessed no cane sugar. The only sweetening property they had was honey.

In those by-gone ages the busy bees were kept simply for what they produced, as the ancients knew nothing concerning the marvelous life-history of these little insects.

But to the writer there is in them an interest far above material gain when their wonderful life-story is told. In that little white box before me is a teeming population of from twenty to forty thousand inhabitants, over which presides a queen, but one of which is in the hive at a time.

At the entrance of their house are sentinels, relieved at stated times, whose duty it is to watch for enemies and thus protect their golden stores.

Every thing within that house moves with clock-like precision. Some are gathering water, others propolis, others pollen, but the larger number honey.

The main population is made up of worker bees, which are imperfectly developed females, and whose average life during the working season is about five weeks.

In the spring a large number of drone (or male) bees are reared, their sole purpose in life being for fertilizing the young queens; and as they are simply consumers, the workers drive them from their hives in the fall and thus they perish.

Bees are not naturally vindictive, but can be handled without veil or gloves if we avoid irritating them.

The queen, much larger and longer than the workers, lives for several years, and is the only perfectly developed female in the hive; and, being the mother, she lays all the eggs, laying as many as 4000 in 24 hours. The eggs are deposited in cells, and in 21 days hatch into fully matured worker bees.

These and many other marvelous facts concerning the busy fellows give to them an interest above their powers of producing sweets. The movable-frame hive, the invention of a clergyman, the late Rev. Lorenzo L. Langstroth, made it possible for us to study the life-history of the bee.

The benefits a clergyman derives from the possession of a few hives of bees, apart from the beautiful stores of honey, are many. First, there is the outdoor exercise derived from studying them, which is a complete relaxation from one's regular work. Then there is the intense pleasure and fascination from seeing the marvelous intelligence they display in all their operations. Some one has said that infidelity falls in the presence of the bee-hive, so wonderfully do these little folks reveal the Creator's hand.

Then from them are learned many lessons of industry, usefulness, and devotion to life-work from which many illustrations for the pulpit can be drawn.

To the writer it has been a glorious treat to leave the study when headache and fatigue were coming on from prolonged men-

Veil, gloves, and smoker protect one fully from being stung. After a little experience the veil and gloves are usually discarded.

tal effort, to step outdoors and lie down beside a busy hive on a June morning and listen to their merry hum.

The green grass, the sweet-scented clover, and the soothing sunshine have in a few minutes enabled him to return to his work with a heart filled with gratitude to the "Giver of every good and perfect gift."

From a mistaken notion that bees are vindictive many have been kept from a more intimate acquaintance with these little people. If one will keep a gentle race of bees like the Italians, and will not irritate them by making quick motions or jarring their hives, he need not fear them. If, however, one is of a nervous disposition, he can, by use of a bee-veil and a pair of bee-gloves, so protect himself that the bees can not possibly sting him, even if he should irritate them unconsciously.

The writer bought a swarm of bees in an old-fashioned hive, as shown in illustration. but soon purchased an up-to-date hive, and when the swarm came out it was placed in that. The following spring an Italian queen was purchased, and received by mail; and in a few weeks all of the common bees had died, and the colony was a big bunch of beautiful golden bees as good-natured as could be, as shown by the fact that, during the season, the writer was not stung once.

An occasional sting, however, is not to be dreaded; for if one suffers from rheumatism the frequent sting of the bee is often a cure.

The theory of homeopathy is, "Similia similibus curantur" (like cures like); and as rheumatism is caused by an excess of uric acid in the blood, the curative properties of the sting are in the formic acid which the bee injects into the system. It is homeopathic remedy administered in an allopathic way.

However, the fact is well known that, as a class, those who keep bees are free from rheumatic pains. But should one be fearful of the slight pain of an occasional sting, the veil and gloves will absolutely protect from them.

Swarm of bees in an old-fashioned hive.

In handling bees a little smoke is puffed into the entrance of the hive, which so subdues them as to make the handling of them very safe and easy.

The little instrument we use is called a smoker, and is made of tin with a bellows attached, and a small fire kept in it of burning rags or planer shavings.

A few months ago the writer, at the close of the season, took from the one hive 106 lbs. of comb honey in little boxes or sections each containing a pound, and felt repaid for the little time required of him.

Honey is a predigested food, and should

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Bees in a city yard.

occupy a larger place on our tables than it does, for, without doubt, it contains elements that conduce to longevity, and in its assimilation does not tax the kidneys as does cane sugar that has not been predigested. In Germany the old people are very fond of "honey tea," made by dissolving two teaspoonfuls of honey in a mug of hot water, which becomes colored, sweetened, and flavored by the honey; and to its constant use many of them attribute their hale and hearty old age. When once tried it will often be repeated.

When Julius Cæsar, dining with Pollio Rumilius on his hundredth birthday, inquired of him how he had preserved both vigor of body and mind, Pollio replied, "Interius, melle; exterius, oleo" (internally, by honey; externally, by oil), showing that at that distant day the food value of honey was appreciated.

Bees can be kept not only in the country but in the city as well; and on the roof of many a city dwelling bees are a source of pleasure and of profit.

It is not the purpose of this brief paper to induce the clergy to go into the business of bee-keeping, although it is possible with twenty or thirty hives, requiring but a little time during the summer to derive from them a large revenue; but, rather, it would lead the clergy to secure a few hives of bees for the recreation and pleasure their study and handling will give.

Of course, the writer indulges in pardonable pride when, upon his table, there is constantly at every meal a luscious comb of golden honey, the product of his busy bees. The early spring is the best time in which to secure bees from a distance, as they can be shipped better then than later on, though perhaps the best way would be to buy some empty hives, and pay some nearby bee-keeper $1.50 or $2.00 for each swarm he will put into your hives.

If the swarms are common black bees, the purchase of an Italian queen for $1.00 will soon fill the hive with thoroughbreds.

The outfit necessary for a beginner is very simple and inexpensive, and consists of one hive complete with supers, pair of bee-gloves, smoker, veil, and a copy of A B C of Bee Culture. If one preferred to buy the Italian bees, queen and all, then a complete colony would cost $9.00; but a three-frame nucleus and queen could be purchased for $5.00.

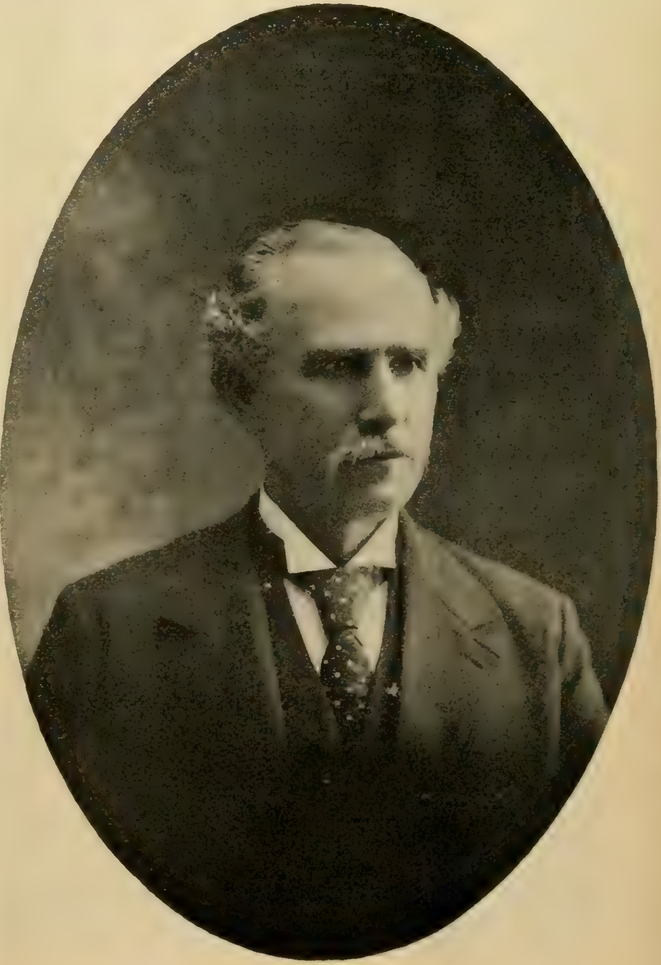
But above all things get some bees; and if, after having studied them and worked among them, and having secured from them many pounds of honey you are not willing to vote that the happiest combination is "A clergyman and his bees," then the writer will have toiled in vain.

E. W. ALEXANDER.

Something About the Man Who has for Years Run 500 Colonies in One Yard; the Rewards of Perseverance.

BY E. R. ROOT.

Some three different times I came very near calling on Mr. E. W. Alexander, of Delanson, N. Y.; but each time something



E. W. ALEXANDER.

switched me off, so that I missed seeing one of the brightest, most intelligent, and most extensive bee-keepers that this country affords. As early as 1890 I was in the vicinity, on my first bicycle tour; but as I was already late in my schedule of appointments I hurried on to some bee-keepers at whose places I had promised to stop. I was, later, roundly scored by some of the local bee-keepers for not visiting the man of whom they all seemed to be so proud. In the mean time I had forgotten all about our friend (for he is not one to push himself forward) until an article of his appeared in the *Bee-keepers' Review* about a year ago. Remembering my visit in his vicinity I began a correspondence, with the result that I became acquainted with a bee-keeper whom it is a real pleasure to know.

Mr. E. W. Alexander has kept bees for 50 *consecutive* years, beginning at the business when he was only ten years old, for he is now a little past 60. At that time his father had quite a large apiary, and the then ten-year-old bee-keeper took the whole charge of it. For over 40 years, he says, he has read every thing he could hear of connected with bee-keeping. In his early experience he destroyed many good colonies in order that he might learn something; and now he is willing to sacrifice, if necessary, *a whole harvest* in order that he may more thoroughly understand this subject of overstocking; for be it known that Mr. Alexander has been for years keeping 500 colonies in one apiary. In spite of this large number in one yard he has made a grand success of the business—so much so that, when his three sons grew up, he helped them in business, and, besides, has a good bank account left. All this was done with the bees without a dollar of help from any one.

He attributes his success to perseverance and to a practical working knowledge of the business. While he has had severe losses at times he has never for one moment, like many other bee-keepers, thought of giving up. For example, one fall his bees gathered some honey-dew that caused the loss of about 500 of his colonies. At another, black brood destroyed over 1000 colonies for him. Still again, his home burned with nearly all his bees, with only a light insurance. Did he give up and become discouraged? Not he. Like another bee-keeper of old, Mr. Adam Grim, who established a bank with the money he made from his bees, when asked what he would do if he were to lose all his bees, he said, with a Grim determination, "I would buy more and start over." That is the kind of stuff that makes success in bee-keeping or *any* calling. Many of our bee-keepers have become discouraged, given up, and have gone into some other business of which they had but little knowledge. Of course, they lose in that too, and all their lives they are working at a disadvantage.

On the general subject of temperance and tobacco, Mr. Alexander has been heart and hand with A. I. Root in his Home talks. There is quite a coterie of bee-keepers in that section who are of the same general stripe. Would there were more of them in the world!

Mr. Alexander writes that his bees have been wintering nicely, and he expects to increase them to 1000 colonies. This entire number he expects to *keep in one yard at home.* When he says he would be willing to "sacrifice a whole harvest" for the sake of learning something, we shall watch his experiments. But from what I know of the locality it is exceptionally a good one. If there is any place in the United States that will support 500 or 1000 colonies of bees it is this section where basswood, clover, and buckwheat thrive in all their glory. Take away the buckwheat, and our friend might have to split up his one big yard into several small ones situated several miles apart; for buckwheat in this part of York State is at its best, and a tremendous yielder of honey.

The portrait shows the face of one who might be a college professor or a bank president. Indeed, a really successful bee-keeper would grace almost any calling in life.

The following article explains one of the secrets of Mr. Alexander's success—watching for the leaks, a waste of brood that naturally occurs from certain faulty methods of manipulation. And right here it is proper to suggest that Mr. Sibbald's method of controlling swarming, as described in our last issue, may be defective in this one respect—that there will be a lot of young brood lost each time the old colony gives a fresh infusion of field bees to the hive on the old stand.

It is possible that Mr. Alexander has a far better method of controlling swarms. The two methods are now before our readers, and we should be glad to have them test them the coming season. Here is the article:

HOW SHALL WE MAKE OUR INCREASE?

Also How to Control Swarming at the Same Time.

BY E. W. ALEXANDER.

This subject has received perhaps as much thought and study as any other one thing connected with bee-keeping, and I will try to show that, with proper management, you can have two colonies, *each* nearly equal to what the mother colony would have been, for the clover harvest, if not divided, and fully equal for a later harvest.

In calling your attention to this matter I take it for granted that you keep bees (like myself) for the purpose of making the most money out of them that you can, regardless of increase or the number of colonies you may have. Simply make what increase will add to your present season's crop of honey. In the first place, let me impress upon your mind the importance of doing every thing in your power, not only to build up all your colonies as strong in bees as you can after taking them from their winter quarters, but to keep them in that condition to the end of the season; for without strong colonies we can not expect much surplus. As the day is now past when natural swarming is desired by any progressive bee-keepers, we will turn our attention to some practical way of making artificial increase.

The most common way of doing this is either forming nuclei and afterward building them up into strong colonies, or dividing a strong colony at once by putting a greater part of the bees with their queen into an empty hive on the old stand, and setting the old hive containing the brood away some distance in a new place. Each of these methods has some serious faults. The nucleus method usually requires so much time that frequently the best part of the harvest is past before they are in a condition to take advantage of it. They also require much work and attention; and the other way of dividing the strong colony is all wrong in every respect. I think I hear some of you say, "Yes, but that is about the same as natural swarming, only the old hive is set on a new stand." I will admit it is something the same, though not half so good; for in natural swarming, the old hive on its old stand *retains* a part of its working force, and matures *all* its brood; whereas, if divided, as is frequently done after its queen and most of its working force are left on the old stand, and it finds itself in a new place without its queen, the greater part of the bees that have ever been out to fly will return to the old stand and join the swarm, leaving the old hive with all its brood in a deserted condition. Then the few remaining bees will destroy every egg and nearly all the uncapped larvæ. Here you lose enough brood, many times, to make nearly a swarm.

After studying on this subject for many years, and trying every thing I could think of to prevent this loss of brood in making our increase, and at the same time avoid the loss of valuable time in fussing with nuclei, and at all times keeping every colony in good condition to take advantage of any unexpected harvest that might come, I hit on what I consider the most practical way of making increase of any thing I have ever tried or heard of. It is this :

Go to the colony you wish to divide; lift it from its stand, and put in its place a hive containing frames of comb or foundation the same as you would put the swarm in, providing it had just swarmed. Now remove the center comb from your empty hive and put in its place a frame of brood, either from the hive you wish to divide or some other colony that can spare one, and be sure you find the queen and put her on this frame of brood in the new hive. Now put a queen-excluding honey-board on top of this new hive that contains the queen and frame of brood with their empty combs; then set your full queenless colony on top of the excluder; put the empty comb or frame of foundation wherever you got your frame of brood, and close up the hives except the entrance. Now leave them about ten or eleven days in this shape, during which time the queen will get a fine lot of brood started in the lower hive, and every egg and particle of larva that was in the old hive on top will have matured so it will be capped over and *saved;* then separate them, putting the old hive on a new stand. It will then be full of mostly young bees and capped brood, and in about 24 hours they will accept a ripe cell, a virgin, or a laying queen, as they will realize that they are hopelessly queenless. I would advise you to give them a laying queen, as I never like to keep my full colonies a day longer without a queen than I can help. In this way you have two strong colonies from one, as you have not lost a *particle* of brood or checked the laying of your queen; and with me it almost wholly prevents swarming. This is the way we have made our increase for several years, and we like it much better than anything else we have ever tried. In doing so you keep all your colonies strong during the whole summer, and it is the strong colonies that count in giving us our surplus. The mere fact of having a large number of colonies does not amount to much unless they are strong in bees and *well* cared for at all times. This is a fact that many have sadly overlooked; and when the season comes to a close, giving them a small surplus, they feel disappointed, and lay the fault on many things that have had but little to do with their failure.

In making your increase in the above way your new swarm on the old stand is in fine shape for a clamp of sections, as it has a large working force backed up by having its hive nearly full of brood and but little honey, as the bees have been in the habit of storing their honey in the old hive that was on top, so they will soon go to work in the sections and have no notion of swarming. Then the old hive that has been set away can usually spare 15 or 20 pounds of honey, which can be taken with the extractor, giving its new queen plenty of room to lay, and in a short time will be one of your best colonies, and also have no desire to swarm. Now, if you have done your duty by your bees since taking them from their winter quarters you can have two good strong colonies in the place of one, ready to commence work on your clover harvest, which here commences about June 15.

From an extensive experience along this line I find I can get nearly twice the amount of surplus by dividing as above stated over what I was able to acquire either by letting them go undivided or dividing in a way that caused the loss of a greater part of their brood. This losing of brood we must guard against at all times, if we expect to secure a fine surplus. It costs both time and honey to produce it, and it is the principal factor in obtaining those strong colonies that gives us tons of honey.

Far too many bee-keepers think that the value of their apiary consists in the number of colonies they keep. This is so only to a certain extent; for if you had 1000 colonies, and they were all weak in bees, so they would give you no surplus, they would not be worth as much as one good strong colony that would give you two or three hundred pounds of honey.

Several years ago one of my sons bought nine colonies of bees in common box hives about the 1st of June. He brought them home and transferred them at once to movable-frame hives, and in about three weeks divided them, making 20 colonies of the 9 he bought, using some queen-cells I had on hand for his surplus colonies. He then attended to those 20 colonies so they were all strong at the commencement of our buckwheat harvest. I then lent him 20 hives of empty combs to put on top of his colonies to extract from. He took 2849 pounds of extracted honey from those 9 colonies and their increase, and left them in good condition, so every one came out the next spring in fine order. Another son, the same season took one colony, divided into three, and received 347 pounds extracted honey. They also came through the following winter in good condition.

I speak of these cases simply to show that it is not necessary to keep hundreds of colonies in order to get a little honey. If you will only keep strong colonies, and give them the best of care, you will soon find both pleasure and profit in bee-keeping.

Delanson, N. Y.

Conversations
With
Doolittle

HATCHING CHICKENS OVER BEES; HOT-BEDS.

"Good morning, Mr. Doolittle. Nice sunshiny morning this!"

"Yes. We have had a remarkable March. Not a windy one as we usually have; nearly all clear sky, and very little storm; but the first twenty days were very cold, while the rest of the days were unusually warm, the mercury going to 85 on the 29th."

"That is about as I remember it at our place. Did you set out any of your bees from the cellar?"

"Yes, about one-third of them; and yesterday, the 31st of March, they were bringing in pollen. But I think the rest will be as well off in the cellars for a week or two yet, as it is evident we are to have it cold for a week or two yet, the way that cold north wind is blowing this first day of April."

"But will not the bees that are left in become uneasy from the cellar's warming up too much from those extremely warm days for March?"

"The cellar has not warmed up any yet, nor will it before May. It was only 45 when we were setting the bees out; and as they scarcely spotted white clothes that were spread out near the hives on their first flight, I am sure they will be better off in the cellar till this cold spell has passed by."

"Will you set them back in the cellar again if it continues cold?"

"No, I think not. The two that were looked into had very little brood, so there will be no brood to chill; and as they have plenty of honey I do not think it would pay to put them in and then carry them out again later on."

"Well, I do not know that it will; but if it came cold, and stayed so long, it would seem better to have them back in the cellar again. But that was not what I came over to see you about. Did you ever try hatching chickens over a colony of bees?"

"No."

"But have you not seen what is being said in the matter in GLEANINGS of late?"

"Yes, and have been tempted to write something in the matter, but did not get to it."

"But—excuse me—if you have never tried the matter how should you be able to write any thing understandingly on the subject?"

"Well, just by having a knowledge that tells me the thing can't be done."

"How can you have such knowledge when you have never tried the matter?"

"On the same principle that you know that a new-born babe can not live without air to breathe."

"How is that?"

"From many experiments during the past, I *know* that the temperature *inside the brood-nest* of a colony of bees ranges between 92° and 98°, never being allowed to go higher than the last-named figures; and the temperature over any brood-nest, or even close up to the bees enclosing the brood, can not be as high as that inside, unless the temperature out in the open air rises above 98°, which is something it never does in this locality, at a time of the year when it would be an advantage to raise chickens."

"That you make plain; but it is not plain to me that you are right in your assertion that 'the thing can not be done,' when you have not tried it."

"But you did not wait long enough for me to make the whole plain."

"Well, I'll wait. Go ahead!"

"Those who have tested the matter regarding the temperature at which eggs are kept under a sitting hen know that the same is from 101 to 104 degrees, so that the 'incubator man' keeps the temperature inside his incubator as near 102 to 103 as possible, knowing that either a greater or a less degree gives him weaklings for chickens; and if as low a temperature as 98 is allowed for any great length of time, an entire failure is the result. Now, knowing this, it is just as certain, without even a single trial, that not one single egg will ever bring forth a chicken over a colony of bees, as it is certain that a new-born babe can not live with all air excluded from it. Yea, more; if those eggs could be placed right down in the center of the brood-nest, a place where the temperature is the warmest possible to obtain from a colony, not one of them would ever hatch, as even this, the very warmest place, would still lack from three to six degrees of the heat the 'old hen' would give them, and four degrees of the lowest heat the incubator is to be kept at. Therefore, all these stories about hatching eggs over a colony of bees can not otherwise be any thing but fallacious. Have I made it plain to you now ?

"If you have stated facts, then I must concede that you are right."

"But there is one thing that this heat of the bees has been very satisfactory with me in doing, outside of their rearing their own brood and keeping themselves warm; and that is, furnishing heat for a small hot-bed."

"A hot-bed! Does not that require more heat than to hatch eggs?"

"No, nor nearly so much."

"How is that?"

"Peter Henderson, who is good authority along all vegetable lines, gives as the best temperature at which the seed of lettuce, beet, radish, onion, etc., germinate, to be 60°, and such as tomato, melon, cucumber, etc., those requiring the greatest amount of heat, as 80; and as a temperature of 85 can be easily obtained from the heat coming from a colony of bees, in connection with the heat from the sun, there is no trouble in having a very even heat, and that of about the right degree, from a colony of bees, for a small hot-bed; or if a larger one is wanted, three or four colonies can be placed side by side when fixed for winter, or when setting them from the cellar."

"But how do you keep the dirt and moisture from making the top of the hive or colony wet and nasty?"

"I take off all wooden caps or covers and spread a part (or all) of an old thinnish bed-quilt over the top of the frames, and a piece of enameled cloth over this, enameled side up. Over this a sheet of galvanized iron is placed, and over this the frame is placed, shutting down over the iron so that the outside air can not strike this iron so as to convey the cold in or the heat out. Now put in your dirt, and cover the frame with a sash the same as you would any hot-bed."

"That seems easy. But what about the water, should you happen to use too much?"

"It is always best, during spring, to have the hive tip toward the entrance; and it is better to have the entrance face south. When so fixed, if too much water is given it simply leaches down on the outside of the hive, and runs to the ground off the alighting-board. Yes, and that makes me think. On cool and cold days the bees will often come out and take water from this drip, instead of trying to go to the brook or regular watering-places, when it is too cold for them to go safely, should a cloud come over the sun. And so we have our bees watered with lukewarm water right at their very door."

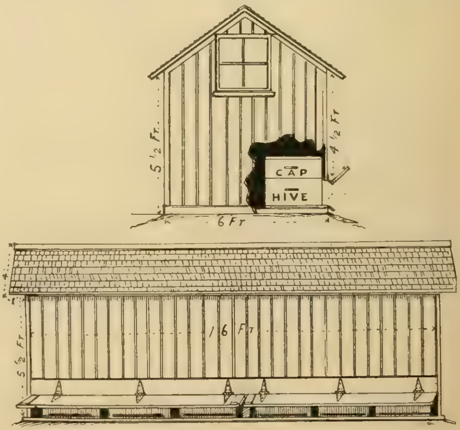
Heads of Grain
from different fields

HOUSE-APIARIES; NO TROUBLE IN WINTERING EXCEPT IN NORTHERN STATES.

I see S. A. Niver, in the *Bee-keepers' Review* for February, has discarded house-apiaries because of winter loss and loss of queens. I mated fifty queens in house-apiaries last summer. I do not remember losing one—certainly no more than if they had been set out. But there are three or four distinct colors in which the hives are painted—not the house.

The entire end of the hive is exposed. I have tried a number of kinds of house-apiaries. I have used this kind for many years with perfect success.

In regard to wintering, I winter eight colonies in each house. In the spring each end hive is moved out, making six to 16 feet. If the weather is warm enough for a flight in the winter I raise the door, exposing the hives to the sun. The sun must shine on the entrance to get a cleansing-flight. If the hives sit back with a long entrance and double wall, the weather will have to be very warm to get a good flight. I do not advocate wintering in a house-apiary in the Northern States. I live in North-central Missouri, and have never lost a colony in 28 years that I can remember. Of course, I double all weak ones in the fall, and pack with a superful of absorbents (leaves or chaff) on top, taking care to leave an upward passage above the frames. However, a colony should have 40 lbs. of stores to winter on and for spring breeding.



Marceline, Mo. IRVING LONG.

[This embodies a principle of house-apiary construction that is somewhat different from any thing hitherto described in the journals, if I mistake not. The feature of having trapdoors opening and closing I believe to be excellent if not new, for the bees may then be allowed to have a flight whenever weather conditions seem to warrant it. One possible objection to this form of construction of a building would be that the outside bees—those bees from the yard—*could* go between or over the hives into the building, if I understand the matter properly. The ordinary house-apiary is a convenient place for the storage of honey and combs, and these could not be exposed in a building of this kind without danger of inciting robbing.

It is pretty well settled now that any form of house-apiary construction should involve the use of outdoor hives so that the outdoor bees can be brought inside, and those inside taken out. Supers and all other fixtures can thus be used interchangeably.

Painting the entrances of the fronts different colors works very satisfactorily. I saw the principle put into practical application at F. A. Salisbury's, at Syracuse, N. Y., in the case of a house-apiary holding 200 colonies. He reported to me at the time that he had no trouble from losing mating queens; and as I saw the bees flying back and forth it was evident to me that they had no trouble in locating their entrances. Prior to the use of these different colors Mr. S. explained he had had some trouble.—ED.]

HOFFMAN FRAMES IN NEW ZEALAND; ZINC COVERS; CURRENTS OF AIR UNDER HIVES.

In course of time most people drop down to the plan of working bees that suits them best. I have discarded hive-stands, as I believe the hives are better with a free current of air beneath them, and bees less liable to attacks of disease. My hives stand four feet apart on two 2×4 scantlings, 4-inch side up. The one in front is 9 inches high, and the other 10; the two are 20 inches apart, supported by wooden blocks.

The hive-covers of the "Excelsior" pattern used to leak, so I nailed a strip of board on the top to make them level with the end-cleats. I next nailed ½-inch boards all over the tops, running from front to back, and finally covered the whole, top and sides, with zinc which is painted white. These covers are heavy enough to remain on the hives in a high wind, and never leak. Since I placed my hives on scantlings, and covered the tops with zinc, my bees seem in better condition.

As to foul brood, I at one time thought chemicals good; but too much of this disheartened the bees; and I believe the only satisfactory way is to shake them on to clean frames and burn the old combs or melt them down.

The first Hoffman frames I used had full-length top-bars, and the bees stuck them tightly against the hives. Later I cut off ¼ inch from each end of the top-bars, and put staples beneath, and I am very much pleased with them, because there is no question as to correct spacing—just push them together closely, and all is correct. I use 9 frames and a division-board, making 10-frame hives.

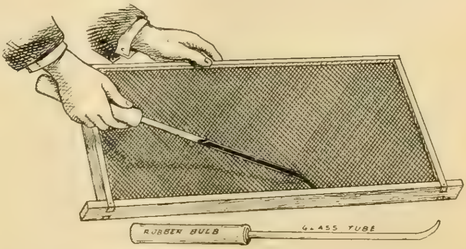
This is the worst season for honey I have experienced. It is nearly Christmas (equivalent to end of June in the northern hemisphere). I don't think my bees have stored a pound of honey—wet and wind, wind and wet, day after day. CHAS. F. ENGLAND.

Foxton, N. Z., Dec. 21.

[Different people have different notions; but it is hard for me to explain why any one should desire to use Hoffman frames with long top-bars. Of course, the argument is put forth that these projections are necessary for handling; but I very seldom pick up a Hoffman frame by the "ears." I prefer to grab the top-bar at a point *just inside* of the end-bars, where I can get a good secure hold for shaking or brushing. For the purpose of examining the comb surface I may handle by the ears, but only then.—ED.]

FASTENING FOUNDATION TO THE TOP-BAR WITH A BULB AND GLASS TUBE.

I send a sample of the wax-tube foundation-fastener that I use. I consider it far superior to the VanDeusen. I fasten super foundation similar to G. J. Yoder, p. 487.



I do not use rosin, but pure beeswax, and have no trouble. I use the tube as I would a dropper. The glass tube must be so that it can be readily pulled out, for once in a while I forget and hold it point up, and the wax runs down inside and hardens. I can not control the stream from the VanDeusen tube so as to use it for fastening super foundation. These fasteners of mine cost me 7 cents for material, buying at retail.

S. J. GRIFFEN.

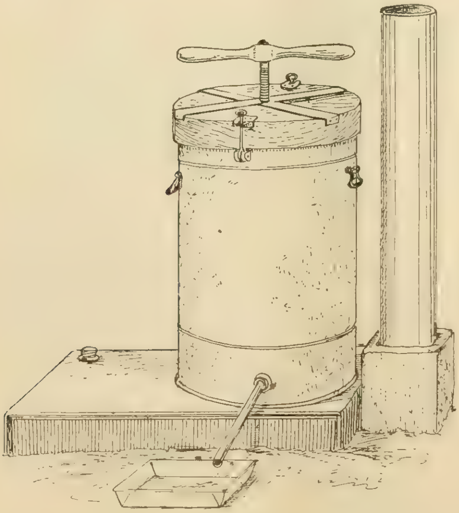
Bridgeport, Ct., Feb. 25.

[I will explain to our readers that the device here shown is made up of an ordinary piece of glass tubing that can be obtained at any drugstore, perhaps 12 inches long, and a short length of ½-inch rubber tubing just right to slip over the glass tube. The other end of the rubber tubing is plugged up. The glass tube is bent in an alcohol flame, the end brought down to a small orifice. This any druggist can do for you if you will show him the illustration. To operate, squeeze the rubber tube in the hand while the glass tube is immersed in a pan of hot wax. Release the pressure on the tube, when the wax will flow up into the glass tube. Next draw the open end of the tube along the edge of foundation where it comes in contact with the top-bar. While drawing the tube, increase the pressure on the rubber handle, forcing the hot wax out in a fine stream.

This principle is all right, but we do not find it as convenient to handle as our regular Van Deusen fastener with an orifice in the handle that regulates perfectly the flow of wax. I might say that, within twelve months, we have made a change in the Van Deusen method of manipulation. The hole for the air-vent is put in the handle, so that there is no danger of burning the fingers, and the tube is made of drawn brass. This is cheaper to make (sells about same price), and in our experience it gives a more even flow of wax. The Griffin tool, above shown, requires a uniformly increasing pressure on the rubber handle, otherwise the wax will not run out.—Ed.]

A SEPARATE GENERATOR OUTDOORS FOR THE GERMAN WAX-PRESS.

I am sending you a picture of my wax-press. This is one of the first presses you made, and the cast-iron cover was not good. I broke it all to pieces, and then made a cover of a three-inch oak plank, with a cross of wagon tire across the top. Then I cut a 1½-inch hole in the bottom of the press, which fits over a spout in the steam-tank as seen in the picture. I fill the tank with water in the morning, which will last until noon. Before I go to dinner I put in more water, to last until night. No time is lost in getting up steam, as by the cook-stove method. I use sage-bush, tree-prunings, and slumgum in the furnace. Now I have a machine worth twice as much as when I first bought it. I can press all the wax out without being afraid of breaking it. I put only a piece of burlap in the bottom of the basket. I find that best. I like to put the frames right in the press to melt the combs out. It takes only eight. I should like to have it larger and square. The grate in the bottom should rest loose on an iron ring so it could be removed for cleaning. The press, as I now have it arranged, is a fine thing to melt cakes of wax. **James Hornback.**



San Jacinto, Cal., March 6.

[We believe that this idea is a valuable one in a good many ways. It furnishes a method of generating steam quickly, with comparatively little trouble and fuss, and in a place where wax drippings will do no harm. To say the least, rendering wax from old comb is a "messy job." If the furnace is made large enough to accommodate a good-sized can also, one batch of comb may be melting while another is in the press—according to the plan which we recommend in our directions. In this way as much as one hundred pounds of wax may be obtained in a single day, and, what is more important, the refuse left is clean. Few bee-keepers have any idea of the dollars they are throwing away or burning up in the refuse of old comb when they do not use some sort of heat during the pressing.

The first few presses that we made had cast-iron covers, but we soon learned, as did Mr. Hornback, that these were not strong enough. But instead of using a heavy cover made entirely of oak, we have been sending out, since the first few, oak cross-arms strengthened by heavy cast-iron underneath, which have proven entirely satisfactory.—H. H. Root.]

CEMENT FOR OUTER WALLS OF HIVES AND FOR FOUNDATIONS OR STANDS.

The hive at best is not satisfactory to me. The Dovetailed is about the best form that I know of. It is all right for summer, but too frail for wintering. The chaff hive is good, but short lived. I have had much experience with cement, and I have an idea of an outer wall and foundation slab in which to place our single-wall Dovetail hives, and keep our bees in this kind of inclosure instead of the chaff hive. This is for a permanent apiary, when the bees are not intended to be moved, and I have in mind a permanent foundation of cement, or a slab of cement say about two inches thick and of sufficient width, and project in front for an alighting-place for the bees. Then make the outside wall or shell about two inches thick, and of such height as is most convenient, say for two stories, and covered with a wooden cover. This outer case of cement should be sufficiently large to give about 1½ inches of space all around the Dovetail hives to give an air-space and also for convenience in taking the hive in and out when this should become necessary. Would such a stone slab be too cold in winter or spring for the bees? or would it be necessary to have a wooden bottom to the hives in such a case? Has such a case ever been tried? If it has, what were the results? If it has never been tried, what is your opinion of of it?

Saint Paris, O. **Geo. Dormire.**

[One of the Somerford's, of Cuba, I believe, has gotten out a patent for a hive made entirely of cement. He argues that the cost will not be great, and that the hive will last for ever. But a hive *all* of cement or stone, we will say, would not do at all in a northern climate, as the stone would be too cold. In chilly or cold weather the outdoor temperature would be transmitted clear through the walls into the cluster of bees. But you do not contemplate a hive of that kind. You would have the outer wall of cement and the inner one of wood. This arrangement would be somewhat expensive, and, what is more, the outer walls would be very heavy; and, besides, there would be danger of their breaking in handling. All hives ought to be adapted for the out-apiary, and should have a certain amount of portability. For that reason it is my opinion that any material, adding to the present weight of our hives, would be objectionable.

Some years ago one of our correspondents suggested the use of cement for bottom-boards. These were made large enough to extend around the sides of the hive to keep away the grass and make a nice slanting doorway to the entrance. But cement, even as a bottom-board, would absorb too much of the coldness of mother Earth when the ground is frozen all around it. There ought to be at least a bottom-board of wood on top to shut off the too rapid absorption of the heat of the cluster.—ED.]

THE ADVANTAGE OF KEEPING BEES IN AN ATTIC IN THICKLY POPULATED LOCALITIES.

I got 154 lbs. of surplus honey, as we call it here, beautiful section honey, from one colony which I have in the attic of my parsonage. I live on a beautiful residence street. A fact that too few people know in regard to bees is that, if they are located very high from the ground, they never bother people on the ground. Our neighbors did not know that we had bees till a year after we had them in the attic. When I presented them with some beautiful sections of honey they were surprised to learn where the honey had been made.

Danville, Pa., Jan. 20. N. E. CLEAVER.

[This is a good suggestion where the population is more or less congested. There are many persons who would like to keep bees enough to get a little table honey of their own.—ED.]

MORE ABOUT A. C. MILLER'S INSTRUCTIONS FOR INTRODUCING.

In a footnote to one of Dr. Miller's Straws, page 168, you ask to hear from others who have had experience, and it is not quite clear to me whether you refer to scent or introducing. If to scent, I have no comments; but as to introducing I feel it my duty to give my experience, since reading Mr. A. C. Miller's article on that subject, as I am in a warm climate, and can do some experimenting that will be of benefit to those in a cold climate later in the season.

I commenced the operation of introducing according to A. C. M.'s instructions, with some misgivings; but I had a queen that I supposed was an old worthless one, but wanted her to keep the colony along until I could get young ones fertilized to take her place, but concluded to experiment with her. The reason I supposed her to be old was that she had a very small colony, and no cell had less than three eggs, and some so many I could not count them. I introduced her into a large queenless colony as directed by A. C. M., and, to my great surprise, on the following day I found her as lively as a cricket, with two frames nearly full of eggs regularly laid, one in a cell. I account for so many eggs in a cell, not on account of age, but a desire to lay; and the colony being too small for her capacity, she laid them in the cells which the bees could cover. I introduced six others with the same results; but none were so prolific as the first, but all did well. I used a very little smoke at the top only. As I expect to introduce several hundred queens this season, one can readily see the value to me of Mr. Miller's article on the subject of introducing.

Mr. Miller speaks of introducing virgins from the mails in the same manner, so I conclude that, to introduce virgins into nuclei, would work as well by the same methods as fertilized queens.

If I understand Mr. Miller correctly he does not attempt to prove that bees have no powers of scent, but that it is not the controlling factor in introducing which is claimed for it, and he surely has some foundation for his belief, as my own experience proves. I would not hesitate to introduce valuable queens by this method now, and I think Mr. Miller has contributed some very valuable information on the introduction of queens. E. M. GIBSON.

Jamul, Cal., March 6.

[Facts are what we want, no matter whom they favor.—ED.]

TWO SOUNDS MADE BY QUEEN; HOW TO DISTINGUISH; AFTER-SWARMS WITHIN FOUR TO SIX DAYS.

In reading the Feb. 15th issue of GLEANINGS I was much interested in Mr. Doolittle's conversation, which was a short treatise on the controlling of after-swarms. He describes two methods as used by himself with success for a number of years, and in the latter method he mentions the noise or voice of the queen, which aids him in determining when an after-swarm is expected. The A B C book mentions two noises made by the queen—one while yet in the cell, and another after being liberated. To which one of these does Mr. Doolittle have reference? and how are we to distinguish the difference between the two?

Again, Mr. Doolittle infers that an after-swarm is not expected until the eighth or ninth day. While that is the rule in his locality, we frequently have an after-swarm here in from four to six days, or at least I have had several such in my three or four years' experience. What is the cause of this excessive swarming? Can it be prevented? HARRY STEPHENS.

Ashley, Ill., March 2.

[Dr. Miller describes the two notes given by a queen by saying one is *zeep — zeep — zeep*, and another one a quahking, pronouncing it so as to rhyme with hawking. The last sound is made inside of a queen-cell, and is a sort of baby-queen note. The other sound is that of a more mature queen, often uttered in fright, and sometimes in a call which we bee-keepers do not understand. Several years ago, happening to stand in front of a hive I heard several long sounds of "zeep — zeep — zeep," in succession. Looking down at the entrance I saw a queen preparing to take flight. Immediately there was an onrush of bees, and the air was soon filled with the swarm. Evidently the sound was used to call the bees. I have never since noticed a queen thus calling at the entrance, and in any case would not conclude that the queen led forth the swarm invariably. Indeed, we do know that bees often and perhaps generally take the initiative. Well, now, to get back to the answer of your question, I would say that Mr. Doolittle referred to the zeep which virgin queens very often make.

While he stated correctly the general rule with regard to the issuing of an after-swarm, yet there are some variations.—ED.]

DO BEES HAVE MORE THAN FIVE SENSES?

Is it possible that scent is that kind of entity that bees recognize by sight instead of smell?

If honey-comb be burned in a manner that the smoke from the burning comb be not visible, how do bees recognize the fact?

Can bees hear as keenly as man does? May not bees be deficient in some of the five senses that we possess?

Is it not possible that bees possess one or more senses that we do not, and still be short in some of the five senses of man?

What evidence have we that bees possess the sense of taste? Why can they not distinguish between poisonous and non-poisonous flowers?

If thought or nerve vibration is a million per cent greater in bees than in man, would that make the bees' three-months' life seem longer or shorter than threescore and ten years seem to man?

When you take a score of young bees from a hive before any of them have ever flown, and release them ten or twenty rods from the parent hive, without fright, what sense is it that guides most of them to return? J. W. PORTER, M. D.

Ponca, Neb.

[Dr. E. F. Phillips, of the University of Pennsylvania, who has made this matter a special study for two summers here at Medina, in which he did practically nothing but watch bees, gave it as his conclusion that young bees were guided toward their entrances very largely by scent. He even went so far as to say if they were taken away a short distance and allowed to fly they would find their own homes through this one sense of smell. Hitherto I had not believed that young bees would be able to find their entrance unless they had previously marked it in the usual manner. I should be glad to get reports from others on this one point. Our correspondent asks several other questions, which I leave to our readers to answer.—ED.]

UNREFINED AND BURNT SUGAR AS FEED FOR BEES.

I send you a sample of some sugar which is said to be used here for feeding bees. Will you kindly tell me whether or not it would be injurious to the bees, and how it should be fed? If fed during spring or summer, and some of it stored by them (should they leave it over in the hive), would it injure them to eat it during winter?

F. B. FREEMAN, M. D.

San Francisco, Cal., Mar. 2.

[I do not remember to have seen a sample of the sugar you refer to; but as a general rule we may say that any burnt sugar should not be used for a winter food, as it is inclined to bring on dysentery. It might not, however, in the mild climate of San Francisco, produce any serious results.—ED.]

PROTECTING HIVES IN WINTER WITH THREE CENTS' WORTH OF OILED SHEETING PAPER; EXTRA BODY ON TOP.

In wintering my ten-frame Dovetailed hives this winter I protected them with an oiled sheeting paper 18 inches wide and 72 long, wrapped around them tight, with strips nailed at top and bottom. This paper is dark-colored, and is both air-tight and water-proof. The cost of paper averages about three cents per colony, and from present indications it will last another winter.

Over the bees I place a Hill device for passageways, and on this a piece of bagging and an extra body filled with six inches of ground cork or oat chaff. I raise one end of the cover of the hive about ½ inch, with a strip laid across it to allow all dampness from the bees to dry out. The bees seem to have wintered finely so far.

H. P. FAUCETT.

Brandywine, Pa., Mar. 3.

[Your method of wintering will do well, or fairly so, in a comparatively mild climate; but I hardly think it would be safe 150 miles west of you away from the moderating effects of the ocean. We tried practically the same thing here in Medina, but lost a good many colonies so protected, while those in double-walled chaff hives came through in good order.—ED.]

OUR HOMES,

BY A. I. ROOT.

Abstain from all appearance of evil.—I. THESS. 5:22.
Let your communication be Yea, yea; Nay, nay; for whatsoever is more than these cometh of evil.—MATT. 5:37.

Dear friends, in this Home Paper I am going to find some fault with some of the modern methods of doing business; and realizing how easy it is to go a little too far in criticising those around us, especially when we undertake to criticise the heads of great institutions, I have been earnestly praying the Holy Spirit may guide me. Nay, I have been praying that it might be *close to me* while I dictate, so that I may be able to do good and not harm. This same Holy Spirit has been reminding me that I am getting old, and these pushing business firms are mostly managed by younger people who may not feel and think just as we older ones do. I can not agree, however, with Dr. Olsen that people after they get to be 60 or 65 are no longer needed in this world of ours. I imagine by the comments of different periodicals that there are very few in the world who do agree with him. No doubt, however, there are places where the older ones should step back or stand aside a little to let the younger ones manage things. In fact, that is just what I have been doing for several years past, and I have found great peace and happiness and enjoyment in so doing, even though some of my pet schemes and plans have been overturned and kicked aside in the march of progress. With the above preface I will tell you what I object to.

For years past one especial trusty clerk has been entrusted with the task of opening all our mails. Perhaps I may as we'l say that this trusty clerk is Mrs. Root's sister. Sometimes when people accuse us or our *clerks* of taking people's money out of letters and then saying the money was not sent, I have felt obliged to teli them that the money is taken out of all the letters that come to our office by Mrs. Root's sister, and I believe this has always silenced all intimations that we have clerks to handle our mail who *might* be dishonest. Well, there has been such a great *pile* of letters of late I have told Mrs. H. she need not stop to read *every* long letter through, to see what department of our business it needs to go to; and I especially told her not to waste her valuable time in reading letters that were simply printed in *imitation* of a typewritten letter. Very soon she informed me she was unable to tell personal letters from our customers from imitations. As an illustration, some particular friend of mine (at least the letter looked that way) said that he wanted me to make a test of a special brand of Kentucky whisky, and gave his reasons. Now, many of you know that it would puzzle almost anybody to tell whether this letter was written by somebody who was anxious about my health and personal welfare, or simply a printed circular sent out by the thousands. I explained to her that, if she would turn the letter over and look at the back side she would notice where the periods had indented the paper in a written letter, but with the printed letter the paper would be left flat like any sheet that comes out of a printing-press. When I told the boys, however, that they could not fool *me* with such imitation letters they began to laugh. One day I got a letter from the Moody Bible Institute, reminding me that I had at different times given them a little assistance, and asking if I felt inclined to remember them this year. The letter started out "Dear Mr. Root." I turned it over, and it had the period-marks of an actual letter. Then I showed it to the boys as an illustration of a personal letter from a business man, and said, "Now, the writer of this letter, I am sure, knows me, and knows that I love the Bible, love righteousness and hate iniquity, and perhaps knows of my Home Papers, etc." My son-in-law, Mr. Boyden, began laughing, and asked me to wait a minute. After hunting over a pile of letters he held up a perfect fac-simile of my own, except that it commenced "Dear Mr. Boyden." I confess it was quite a shock; for ever since I heard of D. L. Moody, heard him talk, and kept track of his work, I thought he was proof against any *sort* of deception; and I had faith, too, that the work he had started would be carried on in the same way. Ernest finally said something like this: "Now, father, do not be too hard on these people. My opinion is, those two letters were actually written; but the stenographer was, perhaps, told to write *bona-fide* letters after that form to a special list of persons. Why, I often tell our stenographers to write the same thing to several people."

Then I remembered that, a few days before, a man asked a lot of questions about sweet clover. Our new leaflets are not yet out, so I dictated the main points to him. A little later another letter came, so near like it that I told the clerk to repeat what she said to the former inquirer. Now, this may be all right; but what I object to is going to such pains to *deceive* people to make them think a printed letter, which can be furnished for a fraction of a cent, is a special letter that it cost the writer time and earnest thought to get up—such a letter as might cost a dollar or two.* I may make this plain by mentioning these absent-treatment doctors. I am glad to say we do not see or hear much about them now; in fact, I can not recall their names. Well, it transpired that these doctors had a list of letters to fit different persons with different diseases. They were so skillfully worded that some one of them would fit a large number of sick people. In order to make them feel sure it was a carefully prepared missive from experienced physicians, they had words crossed out as if the typewriter had made a mistake. Others were spelled wrongly; and there was no end to the scheme to make a person think the doctor was greatly interested in that particular case. Yes, a godly man was he. He was doing sick people *good*. The small amount of pay he asked was a minor consideration. You may remember the postal authorities had a hard time to break up this kind of deviltry, for that is exactly what it is.

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* Since the above was dictated I am informed there are different inventions in the way of type, and also of a blanket to put on the press, so the periods will print through the printed work exactly as they do with the typewriter. Now, men have gone to work systematically to perfect machinery for cheating people who get letters; and all this in order that "even the very elect," to use a scripture phrase, may be deceived and humbugged.

When one of the big doctors was away off in California with his pockets full of money, and, while his stenographers were sending out his printed letters, he was taken to task. Then he tried to explain that he could cure while in California just as well as if he were in his office, even though he did not see a description of the various maladies at all. When the government stopped his mail he simply changed the name of his institution, and kept right on. So much for the illustration.

Now I am afraid that some of our business firms, in their anxiety to advertise, are adopting similar plans with their printed letters. Not only this, but our Christian institutions seem to have fallen into the habit or trick. Please do not misunderstand me. There is no objection to printed letters and leaflets at all. We are sending them out by the thousands, and they are doing a vast amount of good. When I ask why these leaflets are not all printed with common type, the explanation is that people are so apt to throw them into the waste-basket without reading; while a personal letter from somebody, they would feel bound to read. Very true. But is it really honest to go to work systematically to fool people? The objection is often thrown up to me, "Mr. Root, you are altogether too particular. Nobody is fooled by these things, because it has got to be such a common everyday transaction." May be you have heard this kind of logic a good many times—nobody is fooled by extravagant advertising, etc. People *are* fooled, or else this business would not be so much on the increase. Two small boys in our own establishment were "fooled" by Duffy's statement that a man lived to be 107 years old who drank whisky every day; and when you get around to it, not only was Mrs. Root's sister fooled, who has been opening the mails for years, but *I* was fooled; and I have been fooled so much I have become suspicious of good honest letters. By the way, let me say I do not believe in this "chain-letter" business; and I think the postal department agrees with me. Every little while I read some pathetic letter half way through before I discover it is a copy made by some idiot to be forwarded to another idiot. The saddest part of it is, if I do not look out *I* am idiot No. 2.

Some little time ago a touching letter came from some charitable institution in the South. I think it was for educating the poor whites' orphans, or something of that sort. Their plea for aid was so very touching I carried it to Mr. Calvert, not thinking for a moment that it was a printed letter. To my surprise he pulled an exact copy from his pocket, and said he had been wondering if we hadn't better give them aid, even if it was a printed letter. The appeals for funds were written by a young lady, or at least the word *Miss* was written near her name, in a parenthesis. It would appear that a young woman, possibly a teacher, was so enthused with the missionary spirit that she had appealed to business men for help in their Christian work. Had it been a real letter to myself by somebody who knew that I sometimes aid such institutions a little, I might have sent something; but when I realized that many thousands of such letters might have gone all over the United States, I threw my letter in the waste-basket and forgot about it.

Let me digress here sufficiently to say that complaints in regard to our method of doing business are, by my directions, given to me at once. For instance, if a man says he sent us money with a certain order, and waited a sufficient time without getting a sufficient acknowledgment, I always "go for" the clerks or the younger members of our firm. We pride ourselves on promptness in acknowledging every kind of order unless the goods go by mail or express so as to get there as soon as the letter would, or something of that kind. Well, I had been thinking our whole force was getting to be pretty well drilled in this matter until a postal card was put in my tray one morning, reading as follows:

> Mr. A. I. Root.—Several weeks ago we wrote you concerning a very urgent and important matter. Since then we haven't ceased looking for a reply. Please let us hear from you, if only a line. Many thanks in advance.
>
> Respectfully,
> Charleston, S. C., March 13, 1905. (Miss) E. A. Clark.

As soon as I read the words "urgent and important matter" I marched straight to Mr. Calvert, and asked him if he knew any thing about an order for goods, or something of that sort, from Miss E. A. Clark. He began to laugh. He said, "Why, you yourself, father, had her letter, and I had one too—don't you remember?" Then he pulled out of one of his side pockets the very letter we had talked about. This woman, Miss E. A. Clark, fooled me with her long letter about the needs of their institution, and then she fooled me again with her postal card. In fact, I do not know but I got into a bad frame of mind just to think that anybody in our institution might have kept some honest customer watching every day for a reply. I am afraid Miss E. A. Clark has not received any reply yet, and will not until she sees it on these pages. Perhaps it would be uncharitable and unchristianlike to suggest that the word *Miss* might have been added only to make people more ready to read it. God forbid that such should be the case; but I do hope those people in the South who are managing a Christian institution will *see* that they are getting out of the straight and narrow way when they permit cards like the above, written so skillfully with a pen* that even I did not think of its being a copy of something gotten out by the thousands. My good friends, you have no right to push your literature into a busy office like ours in the spring of the year, under the pretense that you are a business customer. Now, I do not mean to be unkind nor uncharitable; but I do mean to insist, in the language of our text, on abstaining from all appearance of evil—especially if we claim to belong to the Lord Jesus Christ. If people will not pay attention to honest appeals for money for charitable purposes, then go without it. It makes me think of the colored people down south who could not pay their minister unless they raised funds by getting up a chicken dinner. Well, they had the chicken dinner. It was well attended, and they had a joyful time; but when they evened up their finances they found the chickens cost more money than they received in admittance fees, and the poor minister was further from getting his scanty salary than he had been before. If we can not raise the money for church expenses, or to pay the minister's salary, in the way of honest square deals, then let us work on a smaller scale until we get a healthy enthusiasm worked up solely *for the kingdom of God and his righteousness.*

Now, there is something else that worries me right in line with that word *Miss* that was on that letter and postal card. A great many times people will pay attention to a letter from a woman when they would not if it were written by a man; and if the woman signs her name *Miss* instead of *Mrs.*, probably she would stand a little better chance of receiving recognition. This is all right in the right way; but it is not all right in a wrong way. When I was in California it was my great pleasure to visit the establishment of a woman florist—Mrs. Theodosia V. Shepard. I think she was then in Ventura. She told us why she started out as florist, and how she surmounted the various obstacles. While I was in Florida I visited two young ladies who were growing flowers in a canvas greenhouse. We all rejoice to see women go into business—especially certain kinds of business such as growing flowers, for instance. I do not know how many successful women florists there are in the United States. There are several in one Ohio city. I was thinking lately they must be succeeding, because the number is increasing so fast. Well, a while ago in discussing the various avenues that are opening by which women may support themselves, an advertising agent informed me there are *not* so many woman florists in reality. He said certain men who wanted to push business had found that, if they issued a catalog, and advertised the name of a woman, especially an unmarried one, more people would send in their orders.* Our wives and mothers love flowers, and many of them, perhaps, would feel more at home in writing to a woman, and stating just what they want, than in writing to a man. Some of you will say again, I am pretty sure, "Why, Mr. Root, what difference does it make what special form or plan a man adopts to attract attention to his business, providing he fills orders promptly, and sends out goods that are satisfactory? What difference does it make to *you* who puts up your goods if they give satisfaction?" I do not know how many of you will agree with the above. God forbid that there should be many of our people who say it does not make any difference whether we have been deceived or not, so long as we get exactly what is wanted. The Savior said, "Let your communications be Yea, yea; Nay, nay; for whatsoever is more that these cometh of evil." While I rejoice in progress in exploring and developing our resources as much as anybody in the world, I feel like saying, God forbid that we have any more inventions that enable us to get money or trade by deceiving people as to the real truth. Some of you may urge that I am damaging the business of the women florists by these *suggestions* that they may not be women after all. Not so. Everybody who does business is quoted by Dun or Bradstreet. By going to any bank you can find out whether the woman owns a greenhouse and conducts business where the catalog or printed advertisement says she does. Some of you may urge that it is a woman's privilege to have a man own her greenhouse, and have his name quoted commercially, and that it is all right. This may be true; but if in our anxiety to see a greenhouse managed by a woman (perhaps to see how much nicer and neater she would keep the premises than a man naturally would) we should make a call on such a greenhouse, and not find any woman around, nor any evidence that a woman had any thing to do with it, would we not be justified in deciding that the catalog and advertisement were misleading?

It is not alone missives by mail that are planned to deceive people. The *Rural New-Yorker* recently gave a column toward explaining, and cautioning people about being caught by an advertiser who makes a specialty of selling farms and other property. When you come to answer the advertisement, however, you will find you have got to send this man some money before he even undertakes to make a sale. Well, his latest trick is to send a *telegram* shortly after the correspondence, worded in such a way as to persuade one he has a customer for his property. This telegram often does the business when his carefully worded printed letters fail. A telegram delivered to a farmer out in the country is generally something of an event in his life, and he makes haste to send on the $15, more or less. But that is the last of it. Many have reported to the *Rural* that, after sending him the money, they never heard from him afterward.

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* Our stenographer informs me that the postal card that fooled me so completely was produced by what is called a "mimeograph," an apparatus used to copy handwriting.

* Friends, what do you think of a man who has a man's strength and a man's opportunity in the world feeling jealous of the success of a woman who has built up a praiseworthy business? She may be a widow with children to support; or she may be a young woman who has an ambition to support herself by cultivating flowers. Now, what do you think of a man who coolly plans to rob her of a part of that business by representing that his greenhouse is owned and run by a woman, or, if you choose, a *Miss* somebody when such is not the case?

When this new revival that is going on over in Wales and in many parts of the United States gets into the towns and villages, to the big cities, and everywhere, I am sure that the Spirit that comes with it, even the Holy Spirit, will impress on all mankind the importance of letting the honest truth—*old-fashioned* truth, if you choose—entirely take the place of these misleading schemes to get the attention of the people and to get more trade and more money. God hasten the day when it will be the fashion to shun even the appearance of evil in every form, and when it will be naturally expected that every man and woman will state the plain and honest truth in business and everywhere else, and let *that* take the place of any sort of scheme to get trade or to get on in the world.

DUFFY'S MALT WHISKY ONCE MORE.

We clip the following from the *New Voice* for March 30. It illustrates the way in which the Duffy people get a man's photo as well as his testimonial, and induce sick people who are near the grave, like drowning men, ready to catch at any straw, to believe that whisky of any kind is a good medicine. Read it and then get your home papers to send out a warning. We are told there is no legal redress for this way of doing business. The only remedy is to keep exposing them as much as possible.

Lisbon, N. H., March 23.—The family of the late Samuel Pike, living here, are much incensed at an outrage that is being perpetrated on them by patent-medicine quacks advertising that notorious nostrum known as "Duffy's Malt Whisky." Western papers are advertising the drug and giving a picture of Mr. Pike with what appears to be a halo of hay around his head, and with it an eloquent "testimonial" reading as follows:

"Mr. Pike bears his 90 years with becoming modesty. Grateful to the maker of this great remedy, he waxed eloquent in its praise.

'An old man like myself needs something of the kind to help nature, and nothing in liquid form was ever made to compare with Duffy's Pure Malt Whisky as an aid to health.

'A wineglassful at night has a delightful effect and insures sound sleep.

'No man feeling the advance of time should neglect to keep it in the house. Human kindness should prompt us to inform others of the benefits to be obtained from such a source.

'I am in my 90th year, and enjoy good health.

Samuel Pike.'"

Now it appears that Mr. Pike never tasted of the stuff until after this "testimonial" was procured.

A long time after this testimonial was alleged to have been secured, Mr. Pike began taking the stuff and died.

The following letter, which Mrs. W. E. Pike, daughter-in-law of Mr. Pike, recently wrote to J. E. Smith, of Oelwein, Ia., explains how the miserable fake was perpetrated:

Mr. J. E. Smith:—We received a letter a few days ago, written to Mr. Samuel Pike, my husband's father. It is almost a year since he died. He died on the 15th of March. A man came here about a year ago, and he had father's picture—got it of the artist. Said he represented the Boston *Globe*, and asked to see father. I was about my work, so let him go into his room. Later he came out after a pen and ink. Well, when he went away father said he was going to send him some whisky, but he did not know what for, and said he did not expect to get it. He said he wanted his name to advertise a medicine. I told him he would use his name and picture to advertise whisky, and tell how he had used it all his life. He said no, as that would be a lie, as he had never seen any of it. Well, he did send him six bottles of Duffy's Malt Whisky. Father could never see why he sent it to him. It was the first he had ever seen, and he did not take whisky until he was sick, and I gave it to him for he had a weak heart.

I do think it too bad that his picture is going around now. I can not tell you how many letters I have answered for him, since he died, about this whisky, and some of them Rev. Mr. Tilden answered for me.

Lisbon, N. H. Mrs. W. E. Pike.

SELLING SECRETS—HOW TO DO THINGS, ETC.

The following advertisement was clipped from the *Virginia Farmer;* and as the wonderful secret emanates from Akron, the county-seat of Summit County, bounding us on the east, it has been sent to me several times. Of course, I sent the 20 cents in order to give all our readers the wonderful secret, and here it is:

HONEY-BEES OUTDONE.

We got 'em beat! Our formula makes fine healthy honey for only 5 cts. per pound. Formula and complete directions mailed free for 20 cts., or free if you send 50 cts. for ——— one year. Make a fortune manufacturing this honey put up in glass tumblers. You can double your money and still undersell all others.

Address ——— ———

Honey Formula.—Take "A" sugar, 5 lbs. Water, one quart; gradually heat to boiling. Skim well. When cool, add one pound bee honey, 4 drops peppermint essence. *Put up in small glass tumblers for retail store trade.*

If 20 cents were not such a trifling amount it might not be worth while to make a fuss about it. But even then it is a slur on and a disgrace to bee culture. The secret seems to be adulterating honey with sugar, which is about as well known as any thing can be, and then adding four drops of peppermint essence. I suppose the 20 cents is for letting you know about the peppermint. If bees were in the habit of getting honey with a peppermint flavor it might help some toward the imitation.

Now, friends, this is a fair sample of the whole business of selling secrets. You get just about as much information, no matter what you pay, dimes or dollars. Of course, it is a swindle on a small scale. The bees are *not* "outdone;" it is *not* honey; and it can not be made for 5 cts. per pound either. Some of our friends have felt a little hurt because I have refused to permit any thing of this kind in our advertising columns. That is, if any thing of the kind has gone in it has been during my absence or escaped my attention. One brother wrote, when I rejected his "secret" that he wanted to sell for 25 cents, that it was one he paid one Gleanings advertiser $2.50 for. I have asked him when and where, etc.

Let me say once more that the class journals contain all the valuable secrets that are known. If they do not get hold of them right away they will very soon after the thing is known to anybody. And there are now good books on almost every subject imaginable, and you can almost always get a nice book giving all the information to be had on the subject for a lesser price than you pay for one single secret. By the way, this honey-man says, in a "dollar book of secrets," that you can make cheaper honey for *every-day use* by using common brown sugar. What a wonderful piece of news that is, any way!

The Honey Producers' League.

Prospectus and Constitution.

A crisis has been reached in bee-keeping. The time is now here when bee-keepers must band together, as never before, fight an insidious foe, and cope with the conditions of modern times. In short, the wide-spread ignorance regarding the value of honey as a food (its deliciousness, cheapness, and digestibility), coupled with an almost universal belief in its adulteration, which belief is fostered by the continued publication of untruthful stories concerning so-called manufactured comb honey, to which may be added the fact that cheap syrups are being pushed upon the market with great vigor—all these combined are depressing the honey market beyond all precedent; and, unless something is done to counteract these influences, our occupation, or, at least, a good share of its profitableness, will soon be gone.

A large share of last year's honey crop is still unsold, while the market is practically *dead*, as is easily shown by reference to the market reports. The crop of the coming season will soon be here; and, should it prove a bountiful one, with last year's crop still unsold, where will prices go then? We may as well face the situation squarely. Then comes the all-important question: What shall we do about it?

Three or four of us began recently to discuss this question, privately, by mail, and we decided to act *promptly*, to the extent of summoning (some by telephone and telegraph) to a conference in Chicago, some eight or ten representative manufacturers, dealers, publishers, and honey-producers. As a result, such a meeting was held March 14th and 15th, the whole two days being occupied in forming an organization, and in discussing ways and means whereby said organization can increase the demand for honey.

The first step was the drafting of a constitution which reads as follows:

Constitution.

ARTICLE I.—NAME AND HEADQUARTERS.

SEC. 1.—The name of this organization shall be "The Honey-producers' League."

SEC. 2.—Its headquarters shall be Chicago, Ill.

ARTICLE II.—OBJECTS.

Its objects shall be to create a larger demand for honey by popularizing its use among the consuming public through advertising in newspapers and magazines its great value as a food, and by such other methods as may be considered advisable by the Executive Board. Also by publication of facts concerning the production of honey to counteract any misrepresentation of the same.

ARTICLE III.—MEMBERSHIP AND DUES.

SEC. 1.—Any bee-keeper may become a member by paying to the Manager an annual fee of $1.00 for each 20 (or fraction of 20) colonies of bees (spring count) he owns or operates.

SEC. 2.—Any honey dealer, bee-supply dealer, bee-supply manufacturer, bee-paper publisher, or any other firm or individual, may become a member on the annual payment of $10.00, increased by one-fifth of one (1) per cent of his or its capital used in the allied interests of bee-keeping.

SEC. 3.—The annual dues shall be payable in advance, on or before May 1 of each year.

SEC. 4—Membership shall cease when dues are in arrears three months.

ARTICLE IV.—EXECUTIVE BOARD.

SEC. 1.—An Executive Board consisting of seven members shall be elected by mail ballot annually in the month of March (after the first election), the ballots to be sent to the membership between March 1 and 5, the polls to be closed at noon April 1. They shall be the seven members receiving the highest number of votes cast. In case of a tie-vote the other members of the Board shall decide it.

SEC. 2.—The votes shall be mailed to the secretary, who, with another member to be selected by the remainder of the Executive Board, shall, together, count the votes, and certify the result to the Manager, who shall then forward copies of the same to the United States bee-papers for publication, also give same in his annual report.

SEC. 3.—The Executive Board shall have the general management of the League, and shall elect from their number the officers named in ARTICLE V. Section 1, who shall execute the orders of the Board, and hold their several offices until their successors are elected and qualified.

SEC. 4.—The Executive Board shall meet annually, on the third Wednesday in April, in Chicago, for the election of officers, and for the transaction of such other business as may regularly come before it.

SEC. 5.—Special meetings of the Executive Board shall be held when called by the President, upon request of three or more members of the Board.

ARTICLE V.—OFFICERS.

SEC. 1.—The officers shall be a President, Vice-President, Secretary, Treasurer, and Manager.

SEC. 2.—The duties of the President and Vice-President shall be such as usually devolve upon these officers.

SEC. 3.—The duties of the Secretary shall be to keep a record of the meetings of the Executive Board, and to count the ballots of all votes of the membership, as provided by ARTICLE IV., Section 2, the result of which he is to forward at once to the Manager.

SEC. 4.—The Treasurer shall keep a record of all moneys received from the Manager, giving his receipt therefor; and he shall pay out funds only on bills approved as per Section 5 of this ARTICLE.

SEC. 5.—The duties of the Manager shall be to conduct the actual business of the League as directed by the Executive Board; to keep a list of the membership; to account for all moneys received, and turn same over to the Treasurer, taking his receipt therefor; to prepare and mail, in March of each year, to the membership an annual report containing a financial statement, and such other matters as would be of interest to all concerned, including all ballots and amendments; and to issue orders on the Treasurer for payment of all bills, when countersigned by the President.

SEC. 6.—The Treasurer and Manager shall each furnish such bond as shall be satisfactory to the Executive Board.

ARTICLE VI.—SALARIES AND EXPENSES.

SEC. 1.—No salary shall be paid any officer of this League, but the actual expense of holding meetings of the Executive Board (when they deem such necessary) shall be paid from the general expense fund.

SEC. 2.—There shall be an allowance of five (5) per cent of the cash receipts to cover all general expenses, such as printing, meetings of the Executive Board, etc., the remaining ninty-five (95) per cent to be applied on the advertising proper.

ARTICLE VII.—AMENDMENTS.

This Constitution may be amended by a two-thirds vote of the membership at any regular election, providing such proposed amendment be first submitted to the Executive Board and approved by it.

Minutes of First Meeting.

A temporary organization was effected and the foregoing Constitution adopted, when, upon motion of Ralph W. Boyden, the following members were elected as an Executive Board: Dr. C. C. Miller, W. Z. Hutchinson, Arthur L. Boyden, George W. York, C. P. Dadant, N. E. France, and George C. Lewis.

A permanent organization was then formed, and the following officers were elected: President, Dr. C. C. Miller; Vice-president, George C. Lewis; Secretary, W. Z. Hutchinson; Treasurer, Arthur L. Boyden; Manager, George W. York.

Before adjourning it was resolved to do no general advertising until there is at least $5000 in the hands of the Treasurer; the Manager was instructed to take the necessary steps for securing the incorporation of the League; and the Secretary and Manager were appointed a committee to prepare the necessary literature for use in soliciting membership.

Some Questions Answered.

While the Constitution quite clearly outlines the aims and objects of the League, a few questions will naturally spring to the lips of one who contemplates joining its ranks, hence it may be well to answer in advance as many as possible of them.

Naturally, the first question asked will be: "Why form a new organization, when the constitution of the National allows the use of its funds for such work?" Principally, because the National has not enough money at its command to do the work effectively, and it could not raise enough without a change in its constitution, as, at present, only one extra assessment of $1.00 per member can be made each year, while the work of advertising, to be effective, requires *thousands of dollars AT ONCE.*

Perhaps some will ask why the matter was not discussed in advance in the bee-papers, and a public meeting called. Why was the matter kept so quiet, and the work done with apparent secrecy? It was done so quickly, simply to save time. When the true situation had fairly dawned upon the three or four who were first discussing the matter, it became equally apparent that only by the most prompt and active work could anything be done that would help the sale of the last year's honey crop before the coming of this year's crop.

Some may wonder why the members of the Executive Board were all chosen so near Chicago. They were thus chosen that they might quickly and cheaply attend Board meetings. Should an important question requiring immediate action come up, telegrams sent every member in the afternoon would enable them to be in Chicago the next morning. If any mistake has been made in the choice of officers, it can be corrected at the next election. As it is, however, it is doubtful if a set of officers can be chosen who would have more completely at heart the success of the undertaking. Besides this, they are all friendly to one another, and will work harmoniously as a unit.

It may be asked why no salaries are paid the officers. If these men are willing to give so freely of their money, they should be equally willing to give their time; besides, if they were paid salaries, many might be inclined to look upon the whole thing as a scheme on the part of the officers to put money into their own pockets. As it is, these men are really putting in their time, money, and energies, expecting no reward except such as will come to them from the improved conditions of bee culture. Only as honey-producers are benefited, will any benefit come to manufacturers, dealers, and publishers, yet a heavier burden is placed upon them than upon the actual honey-producer. The contributions of the Board-members alone will reach nearly $1000.

Every one will, of course, be interested in knowing what forms of advertising will be adopted. Mainly that of advertising in the daily papers and magazines. (No advertising will be done in the bee journals, as that would be simply a waste of money). Probably the first feature will be that of killing, or removing, the false beliefs regarding the manufacture of artificial comb honey. Large space, perhaps one-fourth or one-eighth page, will be used in leading dailies, a large heading reading something as follows:

$10,000 FORFEITED!

Then will follow an explanation and refutation of the matter, and the offer of $10,000 as a forfeit to any one who can show a sample of comb honey that has been produced artificially. Of course, care will be taken to word the offer properly, so that no technical advantage may be taken. The best talent of the country will be employed in preparing and placing the advertising. Many papers that publish these advertisements will probably be willing also to publish articles on bee-keeping written with a view to increasing the demand for honey. Possibly firms that print "patent insides" for other newspapers may be induced to use such articles.

At fairs and exhibitions, it may be advisable to have educational honey exhibits, together with the distribution of suitable literature. Possibly it may be well to put stereopticon lecturers in the field; but, as has already been stated, newspaper advertising will be the main feature.

AN ENCOURAGING INCIDENT.

Let me tell just one little incident: On the train, while going home from the meeting, I fell to talking with a young man who occupied the seat with me. As we became somewhat acquainted, I told him of the object of my trip to Chicago, going somewhat into detail. In reply he said, in substance: "At our home we are fond of biscuits and pancakes, with honey or maple syrup. We send down to Vermont, to an acquaintance, to get the maple syrup, as that is the only way we can feel certain we are getting the pure article. We don't buy honey very often, because, while I had never heard how the story started, as you explain it, I had been led to believe that a good share, even of comb honey, was manufactured stuff (mostly paraffine and glucose) and I didn't care to eat it. I am very glad to have met you, and to have it proved to me so conclusively that I can eat comb honey, and feel that it is the genuine article."

Friends, there are millions of men and women just exactly like my chance acquaintance, and, in the language of the street, it is "up to us" to convince them of the error of their belief. If we could induce one million of them to step into the groceries to-morrow, and each buy one pound of honey, what do you suppose would happen?

This is the work for us to do, and it is the most important work that has been taken up in our line in many a long year. Every other industry is *pushing* its products upon the markets by every means imaginable; are we to sit supinely down and let ignorance, misrepresentation, and business enterprise push our product off the earth? See how new and unknown things are pushed to the front by the force of advertising; let us not lag behind, but use this new force in modern business—*advertising*—to push our delicious product into the position it so richly deserves.

Just a parting word: Don't wait to "see how it is going to turn out." If others are putting in their time and money for the good of the cause—to accomplish something that will help you—meet them half way, join hands with them, do it promptly, and success is assured.

Flint, Mich. W. Z. HUTCHINSON, Sec'y.

Address all business correspondence, membership dues, etc., to the Manager, George W. York, 334 Dearborn St., Chicago, Ill.

Already the following are entered on the Manager's Membrship Book as having paid their first year's dues:

Dr. C. C. Miller	$ 10 00
George W. York	25 00
Geo. C. Lewis (for G. B. Lewis Co)	210 00
H. M. Arnd (for York Honey and Bee Supply Co.)	15 00
E. Whitcomb	1 00
Arthur L. Boyden (for The A. I. Root Co.)	610 00
E. Kretchmer (for Kretchmer Mfg. Co.)	50 00
W. Z. Hutchinson	13 00
C. P. Dadant (for Dadant & Sons)	70 00
Griggs Bros	11 00
F. A. Salisbury	30 00
A. D. Hopps	2 00
Wm. A. Selser	10 00
Gus. Dittmer	22 00
J. A. Green	10 00
C. A. Hatch	10 00
Robert A. Holekamp	6 00
J. C. Davis	5 00
John Nebel & Son Supply Co	18 00
Walter S. Pouder	24 00
J. B. Mason	12 00
A. Mottaz	2 00
W. T. Falconer Mfg. Co.	30 00
Alvin Long	1 00
W. B. Moore	5 00

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

Officers:

J. U. HARRIS, Grand Junction, Col., President.
C. P. DADANT, Hamilton, Ill , Vice-president.
W. Z. HUTCHINSON, Flint, Michigan, Secretary.
N. E. FRANCE, Platteville, Wis., Gen. Mgr. and Treas.

Board of Directors:

E. WHITCOMB, Friend, Nebraska.
R. L. TAYLOR, Lapeer, Mich.
W. A. SELSER, 10 Vine St., Philadelphia, Pa.
R. C. AIKIN, Loveland, Colorado.
P. H. ELWOOD, Starkville, N. Y.
UDO TOEPPERWEIN, San Antonio, Texas.
G. M. DOOLITTLE, Borodino, N. Y.
W. F. MARKS, Chapinville, N. Y.
J. M. HAMBAUGH, Escondido, Cal.
C. A. HATCH, Richland Center, Wis.
C. C. MILLER, Marengo, Illinois.
WM. MCEVOY, Woodstock, Ont.

PEACH TREES.—No. 1 at 3 cts.; medium size, 2¼ cts., and No. 2 at 1½ cts. each. Trees kept dormant until after May 15th. Circular free.
R. S. Johnston, Box 43, Stockley, Del.

FOR SALE.—Bees, honey, land, and timber.
THO. WORTHINGTON, Leota, Miss.

I will Mail Free

Interesting bee literature, including an eight-page leaflet on queen-rearing; also my experience in curing pickled brood, black brood, and bee-paralysis. Send your address and that of your bee-keeping friends on a postal. . . . .

Henry Alley, Wenham, Mass.

"The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer

W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

$5 FOR A FIFTY EGG INCUBATOR

The "Cycle" Hatcher is the perfected result of the latest discoveries in artificial incubation—"A Wonder of the 20th Century." The **CYCLE HATCHER** duplicates the natural hatching of the hen. Made from metal it never warps, swells, cracks or shrinks—results always the same. *Free* Catalog explains the advantages of the metal construction. **Cycle Hatcher Co.,** Box 223, **Salem, N. Y.**

$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.

GEO. H. STAHL, Quincy, Ill.

THIS IS THE LIMIT.

$4.50 For a 50-Egg Hot Water, Self-regulating Incubator. Guaranteed to hatch every hatchable egg. **$3** for 50-chick brooder. Only **$7.50 for complete outfit. 30 days' trial.** Send for FREE catalogue.

No agent's profits to pay.

Buckeye Incubator Co.
Box 64 Springfield, Ohio.

HAWKEYE SPECIAL INCUBATOR

100-Egg Capacity

$9

30 DAYS FREE TRIAL GIVEN

The "Hawkeye" way of **proving** superiority. Now isn't that fair and square?

WRITE for details of our free trial offer. Hawkeye Instruction Book Free with machine.

Hawkeye Incubator Co., Box 91, Newton, Iowa.

CHICKS

...that are hatched in...

IOWA ROUND INCUBATORS

come in big numbers and are healthy and strong. Anyone can see why if they read our catalogue. Even **Heat** and **Exact Regulation** do the work right. *Catalogue is Free, Ask for it.*

Iowa Incubator Co 424 Locust St. Des Moines.

THE "GEM" MONEY MAKER

hatches chickens at a lively rate—live chickens too—that live and grow into money. Our catalogue tells of "Gem" features no other Incubator has. Write for copy—it is free.

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with lice on poultry. **Schild's Lightning Lice Killing Machine** instantly removes them from tiniest chick or fat gobbler. 3 sizes. Also Poultry Bits, Lice Murder, Lightning Lice Killing Powder, etc. Catalog free.

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Monthly, 50 to 100 pages, its writers are the most successful Poultrymen and women in the United States. It is

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nicely illustrated, brimful each month of information on How to Care for Fowls and Make the most Money with them. In fact so good you can't afford to be without it. Price, 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

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LEARN more about the great poultry industry. They make money while you sleep, and will live on what you throw away. Our paper tells how to make money on poultry, eggs, and incubators. Ask for sample copy now—it is free.

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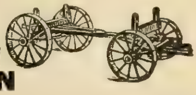

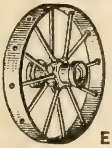

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The Pump That Pumps

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Double-acting, Lift, Tank and Spray PUMPS
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HAY TOOLS of all kinds. Write for Circulars and Prices.

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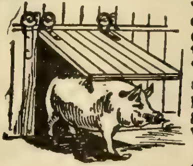

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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850,000 GRAPE-VINES

69 Varieties. Also small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

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We have a limited stock Northern late-grown seed potatoes to offer. Following varieties:
Golden Coin Carman No. 3 Early Everitt
Also the Golden Fleece Oat.
Write to-day for special bargain price list.
E. C. GREEN & SON, - MEDINA, OHIO

Strawberry Plants and Seed Potatoes.

NEW
STRAWBERRIES

You can make more money if you plant intelligently. Write and tell us about your soil. We'll send you our **Free Descriptive Book.** Over 100 varieties.

THE FLANSBURG & PEIRSON CO.
LESLIE, MICH.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange No. 2 Williams typewriter for bee-supplies. H. S. HAUTHORN, Woodbury, N. J.

WANTED.—Twenty colonies of bees in any kind of hives. HENRY ALLEY, Wenham, Mass.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 10 or 25 Danz. supers (new) for uncapping-can, comb-bucket, or wax-extractor.
THOS. S. WORK, Fort Morgan, Colo.

WANTED.—To answer your questions about Cuba for 10 cts. silver.
CUBAN BUREAU OF INFORMATION, Paso Real, Cuba.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—To exchange six-inch foundation-mill for slide trombone, cornet, old violin, typewriter, repeating rifle, or offers. I. S. KERN, Athens, Ohio.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—For April or May delivery from near-by points, bees on Langstroth or Danzenbaker frames. Write, stating full particulars.
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

WANTED.—Queens, bee-supplies, honey, etc., in exchange for flower and garden seeds, books, rifle, and cartridges, gas-machine, etc.
C. W. UNGER, Taftville, Conn.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

Help Wanted.

WANTED.—An experienced man to take charge of an apiary at once. J. W. CARTER, Smith, Nevada.

WANTED.—An active experienced young man as helper in the apiary. Give full particulars and references. B. WALKER, Clyde, Ill.

WANTED.—Young man to work with bees and do some general work around home. Experience not as necessary as willingness and ability to work and to learn. No one wanted who uses intoxicating liquor, tobacco, or profane language.
J. A GREEN, Grand Junction, Colo.

WANTED.—Several young men to assist me in queen-rearing, and later to take full charge of branch in a territory that will be tasteful to them; first year may be spent at home, under direction from undersigned; must own or control at least 20 colonies of healthy bees, and possess some knowledge of Swarthmore methods. For a good man with brains and a willing hand here is something both pleasant and profitable, which can be done at home along with any other work. Address, without delay, E. L. PRATT, Swarthmore, Pa.

WANTED.—At once, a strong healthy man who can handle bees, and is willing to work on a fruit farm when not busy with the bees. Send picture with reply if possible. Address
H. C. MILLS, 416 Hamilton St., Syracuse, N. Y.

Situations Wanted.

WANTED.—Situation by young man as helper in large apiary for coming season in order to learn bee-keeping. Address
C. E. THOMAS, 251 E. 65th Place, Chicago, Ills.

WANTED.—Boy of 17 wants position to learn bee-culture at once; is good, large, and wants to learn.
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Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

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FOR SALE.—Nuclei and queens, good stock, special prices. JUDSON HEARD, Macon, Ga.

FOR SALE.—Thoroughbred S. C. W. Leghorn eggs; 15, $1.00; 30, $1.50; 60, $2.50; 90, $3.25; 210, $6.50.
J. P. WATTS, R. F. D. No. 1, Kermoor, Pa.

FOR SALE.—S. C. Brown Leghorn eggs, $1.00 per 15; are from fine-laying stock.
FRANK C. ALEXANDER, Delanson, N. Y.

FOR SALE.—New empty ten L. frame redwood hive-bodies at 30c each.
H. VOGELER, 210 Davis St., San Francisco, Cal.

FOR SALE.—Thirty colonies Italian bees in shipping-boxes, on seven L. frames, in good condition, at $3.50 per colony. WM. AMELANG, Ottumwa, Iowa.

FOR SALE.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Cheap; comb and extracted honey from alfalfa. Inquire for prices. Must be sold quick.
MORRIS MERCANTILE CO., Las Animas, Colo.

FOR SALE.—Two Root's foundation-mills and outfits—one 4¼-inch and the other 10-inch; nearly new.
G. D. BLACK & CO., Independence, Iowa.

FOR SALE.—One hundred two-frame nuclei at $2.00 each, with untested queen, on standard frames. Tested queens, $1.00; untested, 50c. No disease.
E. A. SIMMONS, Fort Deposit, Ala.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—At a bargain, fine 150-acre farm with a good four-room house, stable, cistern, and two wells; 30 acres or more rich tillable land; located on railroad 14 miles from San Antonio. An ideal location for bees. Price $750. This is a bargain. Come quick.
UDO TOEPPERWEIN, San Antonio, Texas.

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THE HYDE BEE CO., Floresville, Texas.

For Sale.—A few more slightly damaged (by water) hives, eight and ten frame, in flat; Lewis Company make; low price; satisfaction guaranteed; a bargain. Write us. A. G. WOODMAN CO., Grand Rapids, Mich.

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Sound bright stock of the best old and new varieties. Send for descriptive price list. Address . .

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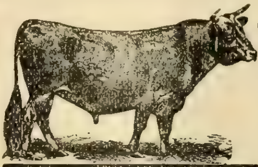

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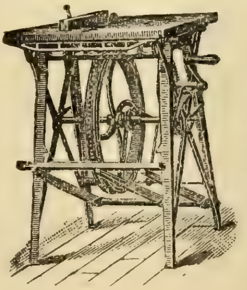

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This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.

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Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
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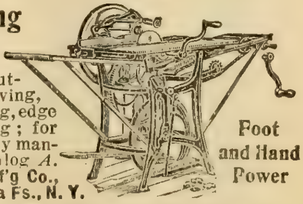

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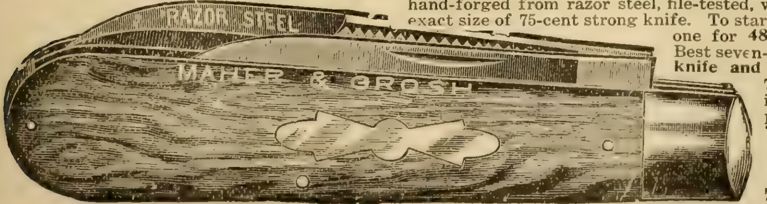

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No. 1124 Model Full Rubber Top Buggy. Guaranteed for two years. Sold on one full months free trial. **$32.50**

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If we could talk with you, or better still the people who have found "Paroid" after a good many years in as good condition as the day it was laid, we would sell you

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for your work. Just let us do it by mail. We have the story all ready to send you on a postal's notice. Write us for free samples and "Building Economy."

F. W. BIRD & SON, Makers,
(Originators of the complete roofing kit-fixtures in every roll.)
Established 1817.
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will give you a new wagon and a lifetime's service out of your old running gears. They are the modern great service wheel. **Made to fit any wagon,** adapted to every duty. Straight or staggered oval steel spokes, broad tired, any height desired. You will be through with repairs and save money, fields and labor of horse and man. Write at once for our catalogue. It's free for the asking.

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It should be soft and smooth after shaving. If it isn't you are not using

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

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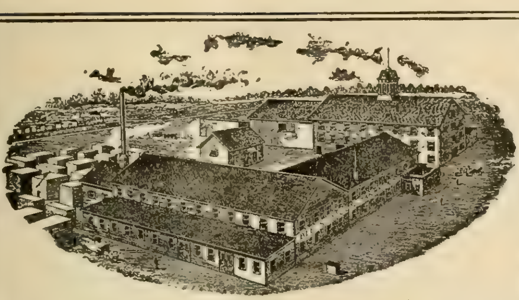

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Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

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Working Wax into Foundation for Cash a Specialty.

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FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.

MARSHFIELD, WISCONSIN.

1884 1905

New 64-page catalog for the New Year now ready

For You.

Twenty successful years manufacturing Bee-supplies and raising Italian Bees and Queens.

J. M. Jenkins,
Wetumpka, Ala.

I. J. STRINGHAM,
NEW YORK,

furnishes everything in the line of Bee-keepers' Supplies. Italian Bees and Honey in season.

I have been in the supply business 14 years, and have kept bees 22 years. Have studied the East as a honey-producing country; know the honey-producers in each section, hence know the appliances best adapted, and furnish them. Our advice is yours for the asking. Catalog free.

Salesrooms--105 Park Place. Apiary--Glen Cove, L. I.

Carniolan-Italian Cross, also Pure Carniolans.

These bees came through the past severe winter in good honey-gathering condition, and I am now, March 27, extracting 25 to 30 pounds of new honey from each full colony to give more room. Italian colonies are not yet strong enough to more than get a living, and such is the case every season with me. Draw your own conclusions. Queens as good as the best, $1.00 each; $9.00 per dozen. Money-order office, San Angelo, Tex.; post-office, Vigo, Tex.

J. E. Chambers.

PROVIDENCE QUEENS PROVE THEIR QUALITIES

To be unsurpassed.

Reared by an exclusive method.

Circular on request.

LAWRENCE C. MILLER,
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California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested breeders, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer. Ventura. Calif.

Queens

California

With tears of sweetest joy,
That nothing can alloy,
I arise to say that
(Excuse this shabby hat)

DOOLITTLE

Has worked so very hard
That he has got a "pard"
To help him with his bees,
And if you wish to please—

Yourself and us, send for a circular giving particulars regarding our fine Italian

QUEENS

Prices for queens this season will be as follows:

	1	3
Untested	$1.00	$2 25
Tested	1.25	3.00
Select tested	1.50	4.00
Same, 1904 raising	2.50	
Select breeding	5.00	
Extra select breed	10.00	

Prices quoted by the dozen or hundred.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

Red-clover : and : Italian : Queens

Am booking orders now for my queens at 75c for untested; tested, $1. Get my circular. Nuclei and queens a specialty. Queens ready April 15th. Let me book your order now. **G. Routzahn, Biglerville, Pa.**

A FEW

Unsolicited Testimonials Showing Kind of Stock Sent Out by Quirin-the-Queen-breeder.

Our folks say that your queens are extra fine.
The A. I. Root Co., Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was from one I purchased last year that gave me over 600 pounds of honey.
J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country.
E. L. Messenger,
53 Townsend Ave., New Haven, Conn.

The nuclei you sent J. A. Adams did just splendid. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley,
Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.
S. A. Peck, Box 124, Northumberland, Pa.

Prices before July 1	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	.....	.....
Straight five-band breeders	6 00	.....	.....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	.....
4 frames brood, 4 frs. foundation	5 00	25 00	.....

If a queen is wanted with nuclei or colonies add the price of whatever grade of stock you want. Quirin's Northern-bred Italians are hardy, and give you results. Safe delivery guaranteed to all parts of the U. S., Canada, and Cuba; foreign countries, 25 cts. each extra.

Queens Now Ready to Mail

Special prices in lots of 50 or more.
Our business was established 1888.
Send for circular, and address all orders to

Quirin-the-Queen-Breeder

BELLEVUE, OHIO

H. M. ARND, Manager.

Headquarters for

LEWIS' GOODS IN CHICAGO.

Best and Most Direct Shipping Point in the World.

Having decided to add Bee-Keepers' Supplies to our honey-business, we have arranged with the well-known **G. B. LEWIS CO.** to handle their full line of **Popular Beeware** in Chicago. We will sell at their regular prices.

Catalog and prices on honey on application. If you want **Good Goods at Factory Prices and Prompt Shipment,** send your orders to the

YORK HONEY AND BEE SUPPLY CO.

(Not incorporated—Successors to The York Honey Co.)

H. M. ARND, Mgr. 141 & 143 Ontario Street, CHICAGO, ILL.

☞ Beeswax taken in exchange for Bee-Supplies, or for Cash.

BINGHAM Original Direct Draft CLEAN **Bee Smokers**

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder

Prices—$1.50; $1.10; $1.00; 90c: 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS Have These Latest Improvements.

RUBBER STAMPS.

Stamp your name and address on your letters. You will save yourself, as well as others, lots of trouble. A two-line stamp costs but **25c**. Many styles and prices given in our rubber-stamp catalog. Send for it to day. ¶ A stamp is neater than a label on sections, etc.

THE A. I. ROOT COMPANY, Medina, Ohio.

FREE! A Subscription to Bee Journal One Year

with order of $5.00 or over. Cheapest place in the United States to buy your supplies.

One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.

Wholesale and retail. Send for free list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

## EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.* :: :: :: :: ::

The new edition of "A B C of Bee Culture" is now here, and is ready for immediate distribution. :: :: ::

I occupy 4892 square feet of floor space, which is constantly occupied with a stock of goods. Since January 1st the Root Company have sent me three full carloads of supplies and twenty-four local shipments with which to complete rush orders. These nice clean goods are stacked to the ceiling, and are ready for immediate distribution. Keep right on sending in your orders as I am prepared to handle still more business with my usual promptness. Other carloads are coming.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., INDIANAPOLIS, IND.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

Jamestown, N. Y.

PAGE & LYON,

NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

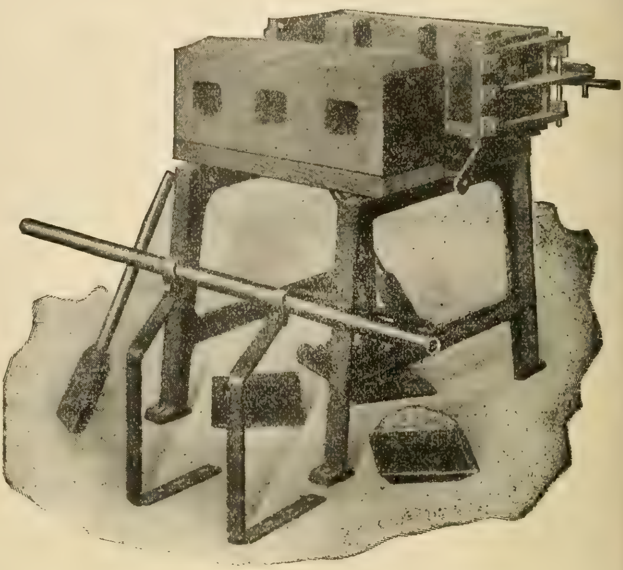
CONCRETE

for building purposes is cheaper than wood, costs less than brick, and is better than stone. . . . . .

The "Handy" is a standard concrete building-block machine as much as a Remington typewriter is a standard writer. Why? Because it is practically indestructible, simple, easy to operate, and the fastest block-machine made. Any-sized off-bearing plate (simply a board 2x8x24 inches) answers for any sized block. The cores are removed through the bottom of the block. It meets the requirements of contractor, manufacturer, or consumer. It is especially adapted to work required to be done at building site. It makes a block any length up to 24 inches, any width up to 8 inches, either plain or rock face, and is especially adapted to veneer work. Is a one, two, three, or four man machine.

Price complete, with carrying-hooks, tampers, and all accessories necessary in the manufacture of blocks, **$50 Net**.

By April 5th we will have ready for shipment our new adjustable machine, which will make any block up to 12 inches in width, also L-shaped corner-block; being three machines in one—8, 10, and 12 inch. This we will be able to sell for $100.00 net cash, f. o. b. at Medina.



Medina Concrete Company

MEDINA, OHIO

SWARTHMORE QUEEN-REARING OUTFITS.

For sale by all dealers in Bee-keepers' Supplies. Trade supplied by The A. I. Root Co.

Price List of Complete Outfits for Rearing and Mating Numerous Queens.

Perfect Nursery Cages with removable compressed queen-cells. Directions go with each outfit, which will enable the small bee-keeper to rear a few queens for his own use. Simple devices, easily understood by any bee-keeper; first prize, Royal Show, London. Leading queen specialists have adopted the Swarthmore plan because of its simplicity and saving. Testimonials for the asking.

Outfit No. 1.—Experimental.

12 Transfer Cages; 12 Wooden Cups, waxed ready for larvæ; 1 Cell-bar, bored, for wooden cups; 1 Holding-frame; with full directions. POSTPAID........................ $1.25

Outfit No. 2.—Amateur.

2 Cell-bars, bored, 16 holes each; 35 Waxed Wooden Cups; 1 Holding-frame; 18 Transfer Cages (or hatchery); Cell-cleaning Stick, Grafting-tool, and directions. POSTPAID........................ $3.50

Outfit No. 3.—Professional.

1 Grace Cell-compressor, 100 Flange Wooden Cups, 1 set Cell-bars, 1 Cell-starting Lid, 1 Swarthmore Incubating Cage and Holding-frame, 10 Improved and complete Baby Mating Boxes, 18 Transfer Cages, Cell-stick and needle, etc. By express or freight $6.50

1 sample Baby Mating Box, with directions. By POST..50 cts.

1 sample Transfer Cage, with Waxed Wooden cup..10 cts.

"Increase" is a handsome little book telling how to form new colonies without breaking working stocks. A simple, sure, satisfactory plan...... 25c

"Baby Nuclei" tells how to mate many queens from sections with a mere handful of bees; 42 pages, 20 pictures. Plain, cheap, simple.............. 50c

Compressed Cells

can be used over and over—the oftener they are used the better they work. We compress cups in removable wooden cups at 2 cents each; or you can own a Grace Cell-compressor for $2.00, postpaid; with goods, flat, $1.75. Blank shells, 1 cent each; glass-bottle feeders, 5 cents each; mating boxes in lots of 6, flat, $1.00; bulb filler or feeder, $1.00.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Special Notices by A. I. Root.

Our convention at Central Lake, in Northern Michigan, was a very pleasant and profitable meeting, and my write-up of it is already prepared for the next issue. The crop of raspberry honey has been very good during the past year; and so long as the wild raspberry is allowed to flourish in Northern Michigan, that will continue to be a profitable place for those who make bee-keeping a specialty.

JADOO FIBER IMPORTED FROM ENGLAND.

Jadoo fiber can now be had of Miss Mary E. Martin, Floral Park, N. Y. You can find particulars and prices in her catalog. I do not know how it is with florists generally, but as for myself I would not undertake to grow plants and seeds in the greenhouse without having at least a little jadoo fiber to mix with the potting soil more or less.

IS IT A WRITTEN LETTER OR A PRINTED ONE?

The heads of our firm have about decided it is next to impossible to distinguish a real written letter from the counterfeit (that is the proper name for it, dear reader) made on a printing-press. While I dictate I hold in my hand a letter from a veteran bee-keeper. He thinks a distinguished (?) doctor had taken the pains to write him a long personal letter in regard to the treatment of a sick relative. But said letter was simply printed on a press, and copies of it have probably been sent to thousands of people just to get their money. If he succeeds in making the counterfeit letter pass for a genuine one he usually gets the money.

THE CHRISTIAN'S SECRET OF A HAPPY LIFE.

For several years we have been unable to get a nice substantial copy of this work at a reasonable price. We are glad to tell our friends just now, however, that we have a very pretty edition, bound in cloth, at the very reasonable price of 25 cts. If ordered by mail, 6 cts. more for postage. This book has had a very large sale for more than twenty years; and when I tell you that quite a number of people have been converted to the Lord Jesus Christ simply by reading it you will not wonder why it sells. At one time it was carried and sold by the newsboys on our railways. It not only contains a wonderful "secret" for unbelievers, but to many who have been church-members all their lives, but not the "happy" church-members that God intended we should be.

THE ACME HAND POTATO-PLANTER.

With the number of these that are sold every spring they ought to be pretty well known by this time. Let me repeat once more that, in the great potato-growing region around Grand Traverse Bay, Michigan, the potatoes are all planted with these hand planters. The planters used so commonly here in Ohio, worked by horse power, have been tried in Northern Michigan, but they are soon laid aside for the hand planter. This season we make them only 60 cts. each; three or more, 55 cts. each; half dozen or more, 50 cts. each. The machine *can* be sent by mail at an additional expense for postage of 45 cents; but it is a rather unwieldy thing to put in the mail-bags Better have it go by express, or, better still, order it so as to go by freight with other goods. The planters we sell are made in Traverse City by the firm that first invented it, if I am correct; and as they are right in the potato-growing regions they know exactly what is wanted.

WEATHER INSTRUMENTS FOR THE HOME.

The above is the title of a little book of 62 pages, principally in regard to the use of the barometer, thermometer, and hygrometer applied to the weather. It also discusses clinical thermometers used in the practice of medicine. There is very great need of general information in regard to the barometer and thermometer. In using the barometer especially, few people who possess one give it the time and attention needed to foretell the weather to the best advantage. In our own neighborhood they all come to me to know what the weather is going to be, because I keep track of the instrument enough to know just which way the mercury is moving. Although this book is quite scientific it gives a large amount of valuable popular information. Price 25 cts. It may be ordered of the publisher, A. L. Dyke Automobile Supply Co., St. Louis, Mo., or we can supply it from this office.

GINSENG—LOOK OUT FOR THOSE WHO ARE ANXIOUS TO SELL SEEDS AND PLANTS.

We copy the following from the last *Rural New-Yorker:*

"We have seen several letters from commission men which read about as follows: 'There is absolutely no sale for cultivated ginseng root. Do not send us any more!' The Chinese refuse to buy this cultivated ginseng, and there is no use for it outside of the Chinese trade. This is the end of the great boom in ginseng. It comes earlier than we expected, yet, we understand, people are still investing their hard-earned money in seeds and roots."

THE NITROGEN BACTERIA FURNISHED BY THE DEPARTMENT OF AGRICULTURE.

The following, which is just at hand from the Department of Agriculture, answers a lot of questions from a good many people:

"The erroneous statements which recently appeared in the public press regarding the free and unlimited distribution of inoculating material for leguminous crops is likely to cause those who apply for these cultures to be disappointed. The publication of the results obtained with pure cultures in inoculating leguminous plants has resulted in such a demand for this material that the facilities of the Department have been taxed to their utmost, and for some time it has been impossible to meet the demand; in fact, the total quantity which could be prepared this season was promised early in February.

"The patent which the Department holds upon the method of growing and distributing these organisms was taken out in such a way that no one can maintain a monopoly of the manufacture of such cultures and so as to permit of its being taken up and handled commercially. The commercial product is being handled quite generally by seedsmen. Upon application the Department has furnished all necessary information to the bacteriologists representing properly equipped concerns, but it can not assume to make any statement which could in any way be regarded as a guarantee of the commercial product; nor is it prepared to indorse each and all of the somewhat extravagant claims occasionally made for this discovery. Those who desire to consult the Department's authorized statements should refer to its own publications, the latest of which is Farmers' Bulletin 214."

Our experiment stations are the proper ones to advise in this matter; and we hope they will be able to direct the public where to purchase the inoculating material to supply the demand. It ought to be furnished at a reasonable price by our established seedsmen.

Kind Words from our Customers.

There is something about GLEANINGS (I can't tell just what it is) that makes me feel as if you were very dear friends, especially after reading Uncle Amos' "Home Talks." We take seven papers, and GLEANINGS is the first one picked up, and the "Home Talks" the first thing read by me. I am a cripple with rheumatism, therefore GLEANINGS is a welcome visitor these long winter evenings. I will also add that bee-stings as a remedy for rheumatism have done me no good, and I have tested them thoroughly since I have been in the business, some 15 years. I have also taken the bee-poison internally by the stomach as the homeopathists use it. SIMEON G. KILGORE.

London, Ohio, Feb. 14.

Many thanks, dear friend, for your encouraging words; but I wish you would let us know whether you consider the bee-stings beneficial as a homeopathic remedy. Your test seems pretty conclusive that it does not help *all* cases of rheumatism. How about its virtues as an internal medicine?

T. B. TERRY'S COMMENTS ON MY HOME PAPER ON VENTILATION.

My Dear Mr. Root:—Oh, I am so glad you wrote just what you did in April 1st GLEANINGS! I have long thought of an article on human smells. My own nose has had all too many experiences, but I wanted the views of others too. Yours just fill the bill. I wish you could have heard wife and me laugh over "the smells got all mixed up." It will be a month or two before I can work it in; but I hope, if people won't listen to ventilating their homes to improve health and save life, they may be led to do it out of regard to their friends' *noses.* Most cordially,

Hudson, O., April 13. T. B. TERRY.

Carniolans a Specialty!!

ALSO breeders of Golden and Leather Italians. One untested queen, $1.00; six for $5.00; twelve for $9.00. Tested, $1.50. Best breeder, $3.00. Best imported, $5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free.

Carniolans.—We have bred this race of bees for twenty years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co. : Lake George, N. Y.

BEES A Big Stock Ready to Go Now QUEENS

WE WISH to say that we are now loaded with a big stock of FINE BEES and QUEENS ready to mail now; no delay—send for what you need at once. We breed the three and five banded Italians, Cyprians, Carniolans, Holy Lands, and Albinos in their purity, in separate yards five to thirty miles apart. Tested queens, $1.25 each; breeders, $3.00 to $5.00 each; untested, from either race, 75c—six for $4.00, or $7.50 per dozen. Full colonies, one, two, and three frame nuclei, cheaper than you ever bought good stocks for before. No better to be had. Write for price list FREE. Safe arrival and perfect satisfaction guaranteed, or your money returned. Prices of queens, to dealers or in large lots, on application. We can furnish you bee-hives of yellow pine at about half the cost of white pine goods. Get our prices before you buy.

THE BEE AND HONEY CO. W. Atchley, Manager. **BEEVILLE, BEE CO., TEXAS**

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

Of the highest standard bred from our superior Golden and Leather Italian stock. Gray Carniolan queens mated to Italian drones. Our colonies with these queens reared last season have from three to four frames of brood now. All queens are large and fine.

Untested queens, $1 00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co , Ga.**

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 65c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1 00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

Queens——Queens

You will see I have moved. I am prepared to furnish queens by return mail. I have 100 nuclei wintered over, and am in the best fix to fill all orders in rotation of any queen-breeder in the South. I rear five-banded and three-banded only. Tested, for March and April, $1.25; untested, 85c. Give my bees a chance to please you.

Daniel Wurth, 1111 N Smith St., San Antonio, Tex.

GOOD : QUEENS

Now ready, at $1.00 each; tested, $1 50; golden stock.

J. B. Case, Port Orange, Fla.

The CHOICEST OF TESTED QUEENS

BY RETURN MAIL

From our reliable strain of three-band Italians, which all bee-keepers know are the bees for honey. Price $1.00 each. We guarantee satisfaction and safe arrival on all queens. Send for circular. ::: ::: ::: :::

J. W. K. SHAW & COMPANY

Loreauville, Iberia Parish, Louisiana.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

H. C. SIMPSON, CATAWBA, S. C.

MANUFACTURER OF AND DEALER IN

BEE-KEEPERS' SUPPLIES

and Breeder of Italian Bees and Queens.

SOMETHING NEW IN SUPERS

WIRE CLOTH FOR SEPARATORS

See what Doolittle says in March 1st GLEANINGS. They can be furnished only from Syracuse, New York, and at the following prices: Five supers for 4x5 sections for the ten-frame and also for the Danzenbaker hive, $5.00; ten for $10.00. Five supers for eight-frame Dovetailed hive, $4.50; ten for $9.00. The supers as priced contain no sections or foundation. ❦ Give five of them a trial.

THE A. I. ROOT COMPANY
SYRACUSE - - - - NEW YORK

Standard
POULTRY and
BEE SUPPLIES

The best of every thing for the Poultry and Bee Keeper.

«◇»

Freight Rates From Toledo are the Lowest.

BIG DISCOUNT for EARLY ORDERS

«◇»

Sixty-page Illustrated Catalog now ready for distribution. Send your name for one.

«◇»

GRIGGS BROS.
523 Monroe St. TOLEDO, OHIO

DON'T
WAIT

Send in your order now. Have your supplies on hand when you need them. Delay means loss.

Root's Goods
AT
Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ .˙ .˙

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. .˙ .˙ .˙ .˙

Bees and Queens
from Select Stock

Correspondence Solicited.
GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

.....Special Notice to Bee-keepers.....

BOSTON

Money in Bees for You.
Catalog Price on

Root's Supplies

Catalog for the Asking.

F. H. Farmer, 182 Friend St. Boston, Mass.
UP FIRST FLIGHT

Dadant's

Foundation

It excels. We guarantee satisfaction. . . . .

Bee - supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Root's Bee Supplies

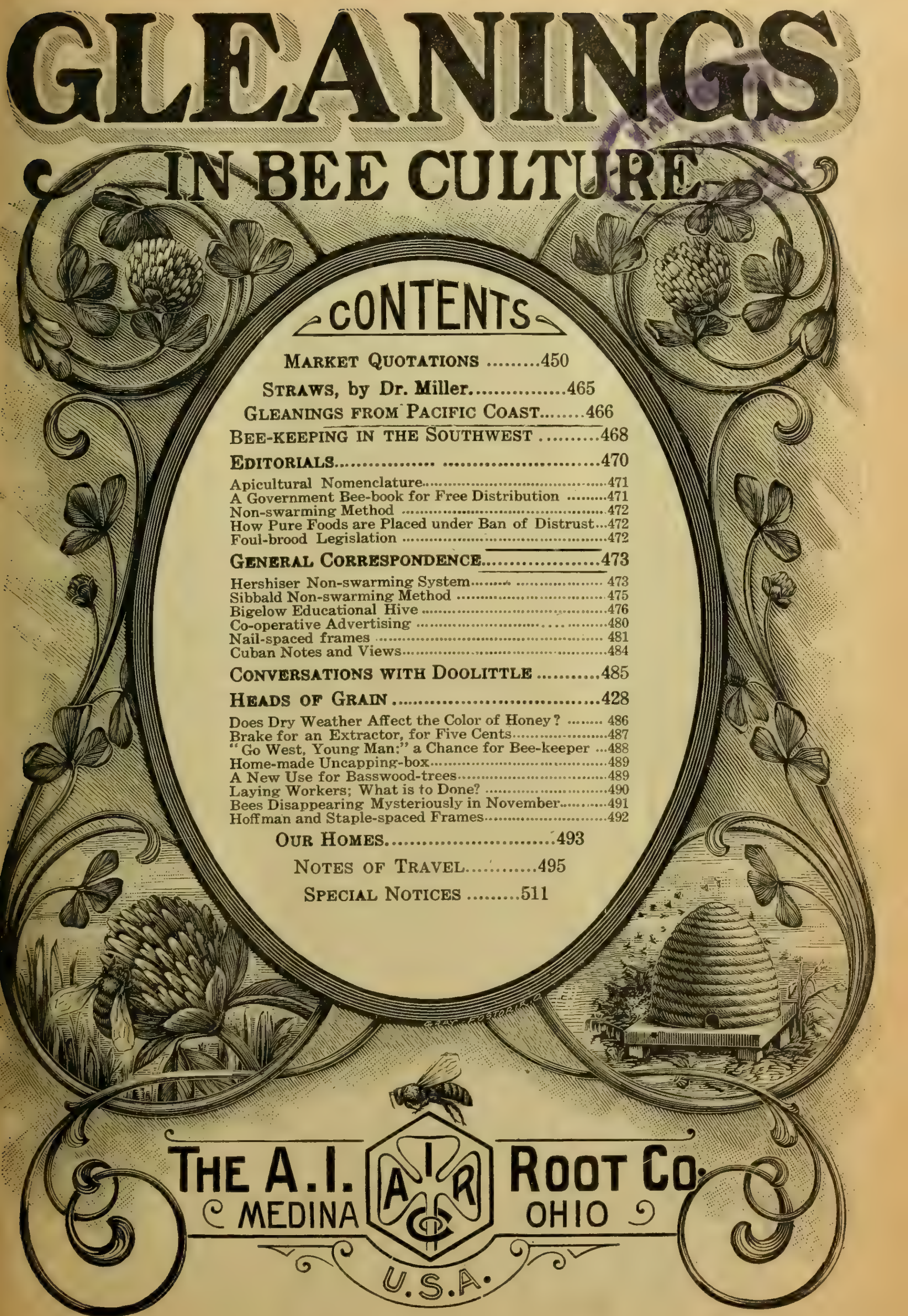
at Root's prices, but at Baltimore instead of Medina. Send us your orders, and save time and freight. Large stock—prompt shipment.

RAWLINGS IMPLEMENT CO.

Wholesale up-to-date Farm Implements and Vehicles,
209 S. Charles St., Baltimore, Md.
We didn't burn out.

Volume XXXIII MAY 1, 1905 Number 9

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition.

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Big Stock -- Prompt Shipments

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Direct Lines to all Parts of State.

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Grand Rapids, Mich.

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A full line of Root's Goods at Root's Prices. ❧ I have an overstock of Danzenbaker Hives and Supers, Ideal Supers, and Sections. ❧ Write for special prices. Also, Hilton's Specialties. Write, and order early to avoid delays and losses in the honey crop. ❧ ❧

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Fremont, Mich.

HIVES, SECTIONS
FOUNDATION

We have a complete stock of **Root's Goods for Michigan Bee-keepers** and now is a good time to place your order. ❧ Our catalog for the asking. ❧ Beeswax wanted. ❧ Remember the Danzenbaker hive, the comb-honey hive.

M. H. HUNT & SON
BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

COMPLETE STOCK FOR 1905 NOW ON HAND.

Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is. there will be "Fancy White," "No. 1 Dark," etc.

Cincinnati.—The conditions of the honey market today are not encouraging. The consumption is lacking, although we are looking forward to brighter days in the honey market. We continue to quote amber extracted, in barrels and cans, 5½@6½; white clover, 7@8. Fancy white comb, 12@13. Beeswax, 28.

The Fred W. Muth Co.,
April 20. 51 Walnut St., Cincinnati, O.

Philadelphia.—There has not been much call for honey in the last two weeks. Prices remain unchanged. We quote fancy white 11@12; No. 1, 10@11; amber, 9. Extracted, white, 6@7; amber, 5½@6. Beeswax, 28. We are producers of honey and do not handle on commission.

Wm. A. Selser,
April 19. 10 Vine St., Philadelphia, Pa.

Chicago.—A carload of comb honey (said to be from Colorado) came on the market about the first of the month. It was placed with a firm that does not make a specialty of honey, and to some extent has upset prices when looked at in print. It is put up in 24-section flat cases with wood slides instead of glass, and is more or less candied. Choice white comb brings 12½; No. 1, 11@12; amber, 8@10. Extracted white, 6@7; amber, 5½@6½—price being governed by quality, flavor, and package. Beeswax, 30, if clean and of good color.

R. A. Burnett & Co.,
April 18. 199 South Water St., Chicago, Ill.

Toronto.—Not much honey changing hands just at present. Prices are practically the same as they were a month ago. While the demand has not been extraordinarily brisk there is not as much left over this year as there has been some previous years. Good comb honey especially is pretty well exhausted, with demand light.

April 19. E. Grainger & Co., Toronto, Ont.

Toledo.—The demand for comb honey is very limited on account of the arrival of new maple syrup. The prices remain the same as the last quotations. Fancy white comb, 13½, with no demand for other grades. Extracted white clover in barrels, 6½@7—cans, 7½@8; amber, 5@5½. Beeswax, 26@28.

Griggs Brothers,
April 18. 521 Monroe St., Toledo, Ohio.

Albany.—Honey market very dull now. The season is about over, with very little stock carrying over. We quote nominal price now for comb honey, as follows: Fancy white, 14; mixed, 11@12; buckwheat, 10@11. Extracted in light demand; buckwheat most in demand at 5½@6. There has been an oversupply of light colors, which have not moved as well as buckwheat and dark grades. The principal demand for extracted honey nowadays is for the Polish Jew trade. They won't use any but dark color. Beeswax wanted at 28@32.

MacDougall & Co.,
April 20. 375 Broadway, Albany, N. Y,

Boston.—The demand for comb honey is light, and the supply is, we would consider, heavy for this time of the year. Without question, much will be carried over to another season, as the sales have been, generally speaking, light throughout the entire year. We quote as follows: Fancy white, 16; A No. 1, 15; No. 1, 14. Extracted, 6@8, according to quality.

Blake, Scott & Lee,
April 24. 31-33 Commercial St., Boston, Mass.

Kansas City.—The market here to-day on honey is $2.00, with a little firmer feeling than there has been for some time. It depends on the stock made in this country whether it will go any higher or not, and we are not in a position to say just what they are. Extracted honey remains about the same—6 for white and 4½ for dark; best box honey, 28.

C. C. Clemons & Co.,
April 19. Kansas City, Mo.

Cincinnati.—The large stock of comb honey yet offered with hardly any demand causes lower prices. I quote fancy water white at 12; other grades lower in proportion. Extracted is in usual demand for this season of the year. We quote white clover, 7@8; amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28.

C. H. W. Weber,
April 18. 2146-8 Central Ave., Cincinnati, O.

St. Louis.—The honey market continues to be very slow, and there is no change in prices, which are more or less nominal. We quote as follows: Fancy white comb, 13½@14; A No. 1, 11@12; No. 1, 9@11. Choice extracted white clover or Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5@5½; in barrels, 4¾@5. Beeswax, 29½.

R. Hartmann & Co.,
April 19. 14 So. Second St., St. Louis, Mo.

New York.—There is no change in the condition of the honey market. Very little comb honey selling, and prices ruling about the same as our last quotations. Extracted in fair demand only Beeswax firm at 30.

Hildreth & Segelken,
April 19. 82 Murray St., New York City.

Denver.—There is some improvement in the honey market, and we are now in hopes that stocks will all be cleaned up before the new crop comes in. We quote No. 1 white comb, per case, $2.20@$2.40; No. 2, $1.75@$2.00. Extracted, 6½@7½. Beeswax, 25@26.

Colorado Honey-producers' Ass'n,
April 12. Denver, Colo.

GOOD DISCOUNTS ON EARLY ORDERS
COMPLETE STOCK OF BEE SUPPLIES--LEWIS CO.'S AT FACTORY PRICES
MUTH SPECIAL HIVE THE BEST DOVE TAIL MADE
SEND FOR CATALOG.
WE ARE ALWAYS IN THE MARKET TO BUY HONEY--SUBMIT PRICE
THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO.

SAN FRANCISCO.—Honey, comb, 10@11. Extracted, water white, 6@6½; light amber, 5@5½; dark amber, 4@4½. Beeswax, 28@29. ERNEST SCHAEFFLE,
April 14. 508, 509 Mills Bldg., San Francisco, Cal.

WANTED—Beeswax. We are paying 27c cash or 29 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York City, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, Ohio.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. UDO TOEPPERWEIN, San Antonio, Texas.

WANTED.—New crop white comb honey. Describe what you have, and state price.
EVANS & TURNER, Columbus, O.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ills.

FOR SALE.—White honey (mostly basswood) in five-gallon cans, at 7 cts. a pound.
C. J. BALDRIDGE, Kendaia, N. Y.

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Honey, Beeswax, Maple Sugar and Syrup, etc
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Bees and Queens in their Season.
32-page Catalog Free.
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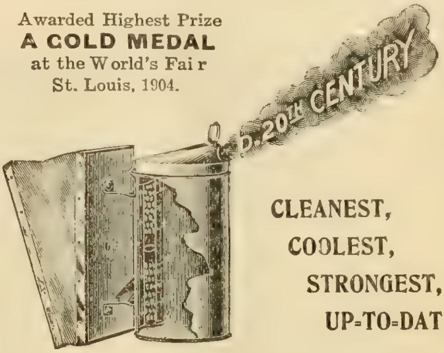
Lyonsville, Mass.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.
It has no snout to clog with soot.
It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.
Guarantee: Simplicity, quality, efficiency, durability.
The General Manager of the National Bee-keepers' Association wrote me:
Platteville, Wis., Oct. 28, 1904.
I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.
Yours truly, N. E. France.
Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.
F. DANZENBAKER, MIAMI, FLORIDA.
or, Care of The A. I. Root Co., Medina, Ohio.

BEST
Bee-supplies
Lewis Goods at Factory Prices
Root's smokers and extractors, Dadant's comb foundation, Bingham smokers. ☞ We sell hives arranged with the famous **Colorado Cover**, the best cover ever put on a bee-hive. Complete hives cost you no more with this cover than with other covers, but they are better.
Where Do You Live? Let us quote prices on what you want, with freight paid to your station. We ship each year to every State east of the Rocky Mountains. Let us ship to you. ☞ **A Porter Bee-escape Free** with first order if you tell us where you saw this ad. ☞ Eighty-eight-page catalog free. Send at once.
C. M. SCOTT & CO.
1006 E. Washington St.
Indianapolis : Indiana

Send for Our Catalog of Bee Supplies
We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. A. W. Swan & Co, Centralia, Kan.

FOR SALE.—Bees, honey, land, and timber.
THO. WORTHINGTON, Leota, Miss.

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 21,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, - Business Manager.

A. L. BOYDEN, - Advertising Manager.

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Forms close 12th and 27th of each month.

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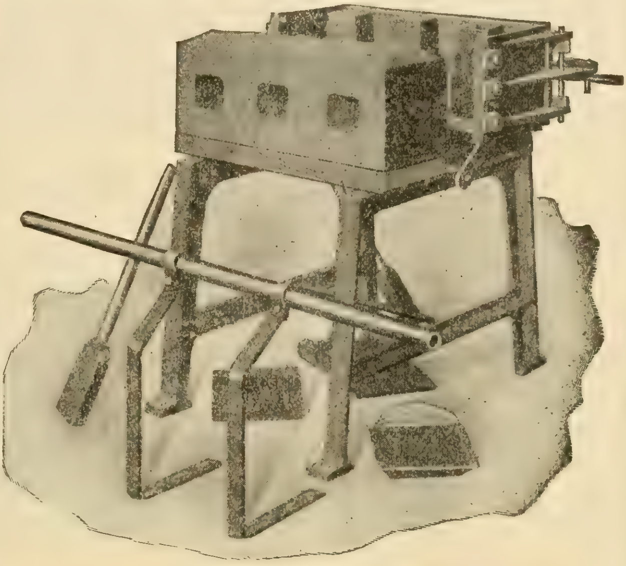
for building purposes is cheaper than wood, costs less than brick, and is better than stone. . . . . .

The "Handy" is a standard concrete building-block machine as much as a Remington typewriter is a standard writer. Why? Because it is practically indestructible, simple, easy to operate, and the fastest block-machine made. Any-sized off-bearing plate (simply a board 2x8x24 inches) answers for any sized block. The cores are removed through the bottom of the block. It meets the requirements of contractor, manufacturer, or consumer. It is especially adapted to work required to be done at building site. It makes a block any length up to 24 inches, any width up to 8 inches, either plain or rock face, and is especially adapted to veneer work. Is a one, two, three, or four man machine.

Price complete, with carrying-hooks, tampers, and all accessories necessary in the manufacture of blocks, **$50 Net**.

By April 5th we will have ready for shipment our new adjustable machine, which will make any block up to 12 inches in width, also L-shaped corner-block; being three machines in one—8, 10, and 12 inch. This we will be able to sell for $100.00 net cash, f. o. b. at Medina.



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MEDINA, OHIO

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Prices of Complete Outfits:

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1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

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2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cup, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional

By Freight or Express, $7.50

2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
10 Comp. mating-boxes, 2 Swarth. nursery-cages
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

These goods and books are for sale by all dealers in bee-keepers' supplies, and furnished at wholesale and retail by The A. I. Root Company.

Prices of Separate Parts:

		post-extra
Bar-holder	$ 10	.04
Blank Bar	.05	.04
Bottle Feeder............................	.10	.05
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16-hole Cell-bar	.10	.02
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Flange cups, unwaxed, 1c each; per 100..	.75	.09
Flange-cups, waxed, 2c each; per 100....	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each....................	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating cage, each	.35	.07
Mating-boxes, complete, each 20c; 10....	1.50	.12
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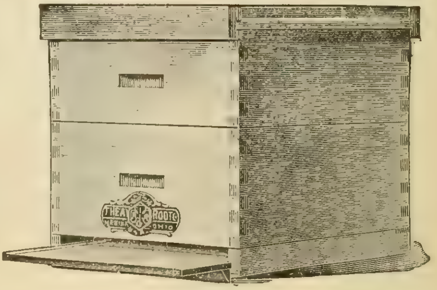
THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.
You can produce better-looking honey.

QUANTITY.
You can produce more of it.

PRICE.
You can get more per pound for it.


THE A. I. ROOT CO. MEDINA, OHIO

Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

UNION BRIDGE, MD., Feb. 9, 1904.
The A. I. Root Co., Medina, O.

Gentlemen:—I saw in a recent issue of your paper that you have a department called "Reports Encouraging." I shall send you my report.

I use the Danzenbaker hive and will give you report of the same, as the few Dovetailed hives that I use do not compare at all with the Danzenbaker. One colony gave me over one hundred pounds No. 1 white honey, and the rest averaged about sixty, with an increase by natural swarming of one hundred per cent. A friend of mine who uses all sorts and kinds of hives in his apiary succeeded in making scarcely enough honey to pay for the foundation used in the sections. This was about two miles from my apiary. Long live the Danzenbaker hive. It is just the thing for this locality.

Yours truly,
J. B. HOLLOPETER.

⁂

MALLET CREEK, O., Sept. 25, 1902.

I now have 250 colonies of bees, of which 170 are in Danzenbaker hives, and shall have all my bees in Danzenbaker hives next spring. During the past poor season, 30 or 40 of the colonies in the Danzenbaker hives gave over 100 pounds surplus. On the average I get more than double the amount of honey from these colonies that I do from those in the old chaff hives. With a seven-inch telescope cover, the Danzenbaker hive winters the bees better than the chaff hives. VERNON BURT.

I have used both square and tall sections in all my apiaries five years, and I know from practical experience that it will pay to discard the 4¼ sections, and use only 4x5 sections, and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hives. I have made *more money* this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made a ton of honey. When it comes to sales, I get more for the 4x5 sections, and have no work in cleaning them. I ship them as I take them from the super. This is not the case with the 4¼ section. I make honey to sell, and anything that sells the best, and for the most money, is what I want out of the bee-business. S. D. MATTHEWS.

In Gleanings, p. 931, Dec. 15, 1899.

⁂

ROCK VALLEY, N. Y., Feb. 22, 1901.

My bees gathered no surplus after July 1. I had only 1200 pounds, but I obtained a fancy price—15½ for "Fancy" and No. 1 white, and 14½ for No. 2 here at my station for all the Danzenbaker 4x5 plain sections used on our hives, while I got only 14 and 13 cents per pound for the 4¼x4¼ square sections, and I consider that much difference is worth looking after—don't you? The Danzenbaker hives doubled up, two brood-chambers, are in fine condition, even better than my double-walled hives. I intend to build a bee-cellar and work off my double-walled hives as fast as I can, and get the Danzenbaker hives. Very truly yours, J. L. HAIGHT

The A. I. ROOT CO., MEDINA, OHIO.

Keeping a Record

of the work done in an apiary, the changes and the results, the condition of each colony, the yield, the pedigree, and characteristics of each queen, etc., so as to be able to find the cause or source of results, is greatly neglected, mainly from a lack of some easy yet comprehensive system of keeping the records.

The BEE-KEEPERS' REVIEW for April has an article on this subject, in which Arthur C. Miller describes how completely he has made the card system answer this purpose. Illustrations are given, showing how cards are ruled, numbered, lettered, and used so that simply a few figures can be made to cover the whole ground as a record, as well as indicate work in progress that may need attention. Still further, the arrangement is such that the bee-keeper can instantly place his finger upon any fact concerning any colony or queen.

Should an unusually large crop of honey be secured by some colony, the records would show whether this was a characteristic of this colony, or simply a "freak" for one year, would also show the pedigree of the queen, thus enabling the bee-keeper to decide whether to go on developing and increasing this strain of bees; and, if so, the foundation upon which to build.

This is only one instance of the value of exact, comprehensive, systematic, easily kept records for the apiary.

Send ten cents for a copy of this issus, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

To new subscribers for the American Bee Journal

Every reader of *Gleanings* should also have the *American Bee Journal* EVERY WEEK. In order that those who are not now getting the *American Bee Journal* may give it a thorough "trial trip" at small cost, we make these two offers for new subscribers.

Three Months, 20c; or the Rest of 1905 for 50c

Sample Copy Free

Cut out this ad., fill out the blank below, and send it to us with either 20 or 50 cents, as you may decide. . . . . .

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ills.

Find enclosed............cents for the weekly American Bee Journal as per above offer to a new subscriber.

Name..

Postoffice.................................. *State*....................

Just $35.00

Why buy a buggy of unknown make? Our trade mark adds 25% to value of any buggy because it stands for quality with a reputation behind it. This is our genuine

SPLIT HICKORY MARVEL

Guaranteed 2 Years, $35. Made to order, sold on **30 Days' Free Trial.** Ask for 192-page catalogue.

The Ohio Carriage Mfg. Co.
(H. C. Phelps, Pres.)
Station 293
Cincinnati
Ohio

FREE! A Subscription to Bee Journal One Year

with order of $5.00 or over. Cheapest place in the United States to buy your supplies.

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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
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Stray Straws

By Dr. C. C. Miller.

A CORRECTION. I said, p. 406, that in my locality, when practicing the Sibbald non-swarming plan, the bees may be counted on to swarm later on "in most cases." I should have said "in many cases."

NO ONE has done so much harm to the market for extracted honey as bee-keepers themselves—those who have put unripe honey on the market. Yes, I know that is not an original remark. E. D. Townsend said practically the same thing, p. 416, and others have said it; but it needs to be said a good many times.

HONEY-DEW may possibly, says Professor Cook, p. 408, be better for bees than something else, because it needs no digestion. Allow a layman to suggest, in a humble way, that doubts arise. Isn't the bee built to do a certain amount of digesting, and better for the work if not overtasked in that direction? Protest has been made against the idea of overdoing the matter of providing predigested food for the human stomach.

ALLOW ME to endorse the editor's word, p. 420, "an eight-frame hive should not be contracted at all," and in one respect neither should any other. To the beginner let me say, "Don't expect good section work over dummies outside the brood-frames. If your happiness depends on getting in a few dummies—if you really feel you must do it—don't put them at the side, but in the middle of the brood-chamber. Of course I'm speaking of harvest time."

IF THAT ARTICLE by Clericus, p. 421, is to serve as a sort of primer to the uninitiated, would it not be well to say that the average life of a worker during the working season is six weeks rather than five? [In some cases six weeks will be too short, and in other cases five would be too long a period. If tall grass and weeds are allowed to grow in front of the entrances, the wear on the wings will be more rapid. It is the wings that wear out, not the whole bee.—ED.]

HARRY STEVENS wants to know, p. 431, whether it's piping or quahking he'll hear the evening before an after-swarm issues. Both. It is just possible that there might be only a single queen in the hive, and she might quahk while in the cell, and pipe after emerging; but if you don't hear a free queen piping and one or several quahkers responding, you needn't expect an after-swarm. First time you hear the noises you'll have no trouble distinguishing them. Your after-swarm four to six days after the prime swarm was because wet weather or something else delayed the issuing of the prime swarm. that, of course, did not delay the maturing of the young queens. You want to know how to prevent excessive swarming. Doesn't Mr. Doolittle's article that you're talking about tell that nicely?

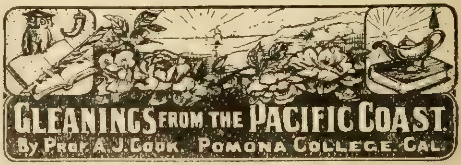
"IT IS HARD for me to explain why any one should desire to use Hoffman frames with long top-bars," quoth ye editor, p. 429. I wish, first time you have a chance, Mr. Editor, you would get one of those men who have tried short top-bars, and don't like them. to open a hive and explain the thing to you. I think you'd understand it. I think that you'd find that the objection is that one end of the top-bar drops down inside the rabbet, and you wouldn't like that yourself. Possibly I'm mistaken; and if there is any objection besides the end of the top-bar dropping down, will some objector please tell us what it is? Of course, with exact measurements nothing of that kind should take place, and it would take a lot of money to get me to go back to long top-bars. [But I have talked with some of those who advocate the long top-bars. As you say, the objection is given because the frames drop down between the rabbets. But would the objection be a valid one if hives and frames be made to fit as they should and as they do fit in all the factory-made equipment? Others have urged that they wanted the long ears for the purpose of handling frames during extracting; but I never handle by the ears, but grab the frames just inside of the end-bars, where I can get a good firm hold.—ED.]

SO A SCRAMBLE is to be made for laurels in the Sibbald non-swarming plan, p. 408. Let me put in my bid with the rest. Please turn, Mr. Editor, to p. 163, "Forty Years Among the Bees," where the "put-up" plan varies by having hive No. 1 set on top instead of at the side. It has the advantage that the bees are sure to go where you want them. [You have about as good a claim as some of the others to priority, and in saying this I do not mean to convey the impression that the other claims are not good. A correspondent may be confused, though, as to which plan presented elsewhere in these columns, under the discussion of the various modified Sibbald plans, is best. Each one will have to do a little studying for himself, and then select the one which to him presents the least difficulty for accomplishing the result desired.—ED.]

TO THE CHARGE which you mention, Mr. Editor, p. 412, that dealers' catalogs are all printed on the same type, you reply by asking why the Root Co.'s dealers' should not be. But the charge was that *all* dealers' catalogs were printed on the same type, and to that you make no reply. Why, for instance, if the charge be true, should the Lewis Co. have catalogs printed on the same type as the Root Co.? [Of course, it is not true that *all* dealers' catalogs are printed on the same type. I had not noticed the statement before, but it is about as accurate as some of the other statements made by the same correspondent. Each of the manufacturers prints his own catalogs. Some of them furnish their dealers with catalogs printed on the same type or plates as the catalogs they use themselves. This is all perfectly legitimate and proper, and is the plan pursued by all reputable manufacturers in other lines of goods to a very great extent.—ED.]

BRO. DOOLITTLE has given us some interesting facts in his very readable article, p. 413; but if he means us to understand that 6¾ Langstroth frames "are enough to entertain the best queen to her full capacity as to egg-laying," with only the qualification that he's talking to comb-honey producers, and if he means that to apply to my locality, then I demur. I have no doubt that in general a queen with extracting-supers lays more eggs than one with section-supers—not so certain about Bro. Doolittle's theory that she lays more because "there is something about extracting honey that causes the bees to feed the queen, or *force* her egg-laying powers," etc. To be sure, any excitement in the way of great acquisitions will make the bees feed the queen; but in a full flow of nectar the bees are already feeding the queen constantly all she can take, and how can they do more? Besides, extracting is not a daily occurrence, and the few times of extracting can hardly affect a fourth of the queen's time of egg-laying. Then how about those who do not extract till the season is over? Surely extracting has nothing to do with the laying of the Dadants' queens till the harvest is gone; and I don't believe the Dadant queens would lay an egg more if the honey were extracted every day, so long as there is a full flow of nectar. Is not the difference rather in the fact that in one case there is plenty of room *ready* for the honey in the upper story, and in the other case they crowd honey into the brood-apartment rather than to get ready fresh room above?

Admitting all possible difference during the harvest, is there any possible difference before supers are given? In a clover region it may happen that not an egg laid after work begins in supers can produce a bee that ever affects the harvest, for the harvest may be over in three weeks; and in general, in this locality, the laying of the queen after storing begins is a very secondary matter compared with the work before that time. Up to the time supers are given I want just as much room for my queens as if I were not a comb-honey producer; and during that preparatory period I should greatly dislike to limit best queens to 6¾ or even 10¾ frames. Finally, is the capacity *of the queen* any less in one case than the other, or is it the difference in opportunity?



GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

TELEGONY.

This is the word Herbert Spencer and other scientists use for the theory that impregnation, or mating, imparts traits of the male to the female. To illustrate: A shorthorn cow is bred to a Jersey. Ever afterward she has a Jersey taint in her blood; and, though she is delivered of a calf sired by a pure short-horn, Jersey blood may show in this offspring.

The foundation for this belief was laid in some experiments of one Lord Morton, in England, who bred a mare to a zebra, and thus produced a hybrid. He then used a horse for a sire on the same mare, and the colt showed stripes.

TELEGONY WITH CHICKENS AND BEES.

Some of our best and most painstaking breeders of poultry, and of bees as well, claim that telegony holds with these animals no less than with mammals. If this be true, then the mere presence of the sperm-cells in the oviducts of the hen or in the spermatheca of the queen-bee has the effect of changing their blood. If as Burbank, the great plant-breeder of California, claims, the scion modifies the stock into which it is grafted, then we should hesitate to affirm that telegony might not be true in case there is experimental proof of the fact. I must say that I was skeptical, not only as to its truth among birds and bees, but, also, with mammals. I wondered if somebody had not blundered.

EXPERIMENTS WITH FOWLS.

I secured two breeds of fowls—Light Brahmas and Brown Leghorns. These are very different. The one lays brown eggs; the other, white ones; the first are white with feathered legs, which last feature holds with great dilution of blood. The others are brown, with clean legs, and very different from the quiet tractable Brahmas in their nervous irritability. I kept all together over winter, and saw them mate each with the other, repeatedly. In the spring I put Brahmas in one breeding-yard and Leghorns in another; and after three weeks of separation not a chicken from the eggs in either lot showed any signs of taint at all. No Leghorn had a sign of a feather striping her legs. This, though I hatched over 200 chickens. Do our readers wonder that my doubts of the truth of telegony with birds was greatly increased?

TELEGONY WITH BEES.

With the queen-bee the sperm is always in the spermatheca during her entire life; and if there is a subtile way for influence to escape and impress, here would seem to be an opportunity. With bees, too, because of the law of parthenogenesis, it is easy to experiment on a large scale if we can only be sure that our queens are purely mated. To be sure of this last, I secured a Syrian queen, one of the first imported by Mr. Jones. Of course, she was certainly of unmixed blood, and she was as surely mated to a Syrian drone. I bred numerous queens from her, but was careful that no drones were produced. These young queens were all mated to Italian drones. From these queens I raised hundreds of drones. As the drones are agamic, or the result of parthenogenetic reproduction, they were pure Syrians; and if there was any show of Italian blood it must be because of telegony. The Syrian drones are very different from Italians in markings. I examined most carefully hundreds—yes, thousands—of these drones, and in not a single case did I note any mark or sign of Italian taint. All these drones from the cross-mated Syrian queens were apparently absolutely pure. Do any of our readers wonder that I was stronger than ever in my belief that telegony did not prevail with bees? I fully believe that, if the queen shows taint in her drone progeny, she was already tainted, and it is not because she is mated with an impure drone that her blood is untrue.

WITH MAMMALS.

I took pains to visit the great exposition at Chicago while the mules were being exhibited. I took occasion to inquire of the extensive breeders. Those who are breeding mules have a fine opportunity to note the presence or probability of the truth of telegony. They breed mules, and often, afterward, colts from the same mares. Here the tendency to long ears would be quick indication of the truth of telegony; yet every one with whom I conversed said he had no faith whatever in the theory of telegony.

Quite recently Prof. Ewart, of Edinburg, Scotland, has repeated the experiments of Lord Morton. He used a quagga—a kind of zebra—and mares. He says that his researches give no sure proof of the truth of telegony. Moreover, he says, granting the facts as stated by Lord Morton, "And yet we can not affirm that telegony is proved." He says that colts from mares that have never been bred to zebra or quagga show often as obvious stripes as those shown by the colts bred by Lord Morton. We see, then, that telegony fails all along the line. The strong probability then is, that, in all cases where telegony has seemed to be proved, the facts could be explained either by taint in the blood of the female or else by the principle of atavism. This last is the explanation offered by Prof. Ewart, of the stripes which showed in the colts bred by Lord Morton.

The practical importance of this refutation is apparent. We suffer the misfortune, through an accident, of having a valuable short-horn or other animal mate with a sire of another breed. If telegony is true she is greatly injured, and can never again be regarded as a pure short-horn. We now know that she is all right, and that we lose only in the one offspring. In case of our fowls, if telegony is true any case of impure mating taints the hens, and they are for ever after of impure blood. We now would regard them just as good and just as pure, even though they had mated in the past with cocks of other breeds, and know that eggs laid after three weeks separation from any but cocks of the same blood will surely give offspring that is as pure as the hen that lays the eggs.

◆

ORANGE HONEY.

Yes, we have it. It is very white, and of exquisite flavor. We should expect from the wonderfully delicious scent that now fills the air in all our citrus regions that this would be true; yet orange honey will never have any commercial importance any more than will that from fruit in the East. It is not that the nectar is not abundant. It is often very plenteous; but the bees at this early season are few in numbers, and so they gather but little, and that goes mostly for the daily needs. I wish, however, that all our friends could now ride with me through the valleys of our beautiful Southland. Yesterday I rode from Pasadena to this place, La Conyada. The green of the hills, the bloom of the fields and roadsides, and the profusion of orange-blossoms that whiten the rich green of the orange-trees and fill the whole atmosphere with their exquisite perfume, are entrancing. One rejoices that he lives in this favored clime, and hymns a song of praise and thanksgiving that he is permitted to live in not only the best but the most beautiful country that the sun shines on in all its round.

THE PHACELIA.

The wild flowers are very abundant this season. They are very early, and already the ground is carpeted with most varied and abundant bloom. Among these are the phacelias, which are already attracting the bees. We have several species of this genus. The flowers are scorpioid—that is, the seed-spikes twist and greatly resemble worms or caterpillars. I often see bees thick upon these phacelias, and have no doubt that they contribute not a little to the coffers of the bee-keeper.

THE GILIOS.

We also have a wealth of gilios among our wild bloom. These are the spring beauties of California. There are many species and of many colors, from deepest blue to brightest pink. The bees like them, and often are hardly less numerous than are the flowers. A very interesting feature of these gilios and some others of this family (*Polemoneaceæ*) is the bright-blue pollen. This deep blue of the anthers makes the flowers most attractive; and the bees, as they bear their double load of pollen of brightest blue to their hives, are really striking in appearance.

BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS

The season in Texas is very late this year, but the prospects for a good honey crop are quite promising. Abundant rains have fallen throughout the winter months, and a good season is in the ground. With these conditions honey-yielding bloom in abundance is assured unless some unforeseen calamity intervenes.

* * *

A "brick of honey" is standing up well in Texas. This "brick" I brought with me on my return to the South, simply carrying it in one of my grips. It has gone through all kinds of weather and through temperatures ranging from below zero up to 95°. The weather here has been ranging between 65 and 85 since I came home, and the honey is just as it was when it was first put up in December.

IN TEXAS AGAIN.

March 20 I bade good by to the North and landed in the sunny South a few days later. It was for the first time that I noticed the great difference between the North and the South. In Ohio, cold weather, snow and ice, winter clothes, overcoats, and gloves were still "in season." Arrived at San Antonio, Texas, it seemed as if summer had already made its appearance. The weather was warm, flowers were in bloom, and bees and birds were in the air. Straw hats and shirtwaists made quite a contrast indeed to our heavy winter clothes which we had not yet a chance to change.

All this made me feel still more sorry for Dr. Miller, who, you will remember, enjoys himself in his shirtsleeves *inside* a warm and comfortable home, with the mercury outside shivering around and below zero, while the Southerners are enjoying the *outside* with all its glorious beauty of nature.

ITALIANS AND FOUL BROOD.

Samuel Simmins, page 178, champions Italianizing as a cure for foul brood, and he gives some evidence that causes one to ask further questions. Such questions have been asked of me, and I hardly know what to answer. There is no doubt that Italian blood would help a great deal, but it is too much of a homeopathic dose for eradicating the disease. Better use severer methods, and eradicate it quicker and more surely. Italian and other good races will keep freer from contagion, and battle with disease longer, than blacks or other inferior races, but it hardly seems probable that Italians would resist foul brood altogether.

Mr. Simmins says, "If one deliberately infects a colony of bees, nothing can prevent them from having the disease, no matter what the race; but here is the gist of the whole matter: The blacks do not attempt to subdue it; the others do—so much so that, for a long time, the inexperienced eye would detect nothing the matter with the combs, while a favorable season or a little judicious assistance would enable them to eradicate it entirely.

It seems to me that their foul brood might be of a milder form than the dreaded disease we have in America. We Southerners would like to have a little more information on this subject. Although we have only a very few localities in Texas where foul brood exists, we are taking every caution to prevent its spread.

WINTER LOSSES IN TEXAS.

A large number of bee-keepers in Southwest Texas have suffered from winter losses, some of them quite heavily. The cause was too close "robbing" last fall. When the last surplus honey was taken off it was expected that the colonies would store sufficient for winter from late fall flowers. These failed to yield on account of the dry fall, and the bees were left short of stores. The bee-keeper, not examining his bees, was unaware of the fact, and the result was a lot of dead colonies in the spring. Some lost as many as half of their bees. A little more attention and care, and a little feeding would have meant money in the bee-keeper's pocket. It does not pay to take honey too closely in the fall, and to trust too much in a late fall flow for winter stores. My advice has always been against such practice.

In some localities the bees had enough stores to carry them through an average winter. The past one was a very severe winter, however, and it lasted so long that the stores were soon consumed. To this might be added the lateness of the spring, which prevented the bees from getting new stores.

My own loss was 6 out of 250 colonies, and those were either weak or queenless colonies the fall before, except one which had a bad case of paralysis. Nearly all of the others came through with a surplus of 10 to 30 pounds of stores, and all of them strong and in fine condition. A good deal of this honey was left on the hives in shallow extracting-supers.

BRICK HONEY IN THE SOUTH.

My opinion is that the brick-honey industry can be developed here in the South quite profitably, although it did not seem so at first. Well-ripened honey granulates solid during our winters, and some of our honeys granulate soon after being taken off the hives early in the season. With the assistance of cold storage or a refrigerator, no doubt the candying could be hastened, and result in a more solid cake for cutting into bricks. Once put up in the smaller packages it would stand up longer, and there would be little danger during the cooler months. When warm weather sets in, the bricks might be placed in cold storage as are other things. If this can be done there is no reason why such goods must be sold out before warm weather comes. Neither will the bee-keeper be compelled to take any unsold brick honey off the dealers' hands at that time. This would apply to the North the same as to the South.

It would be well worth trying some experiments along this line. If the bricks can be kept in a cool place and taken out as needed when sold to the customer, such honey could be kept on the market the year round.

A cake which I have here now has withstood as high a temperature as 95° during the day, without being affected. Of course, the nights were quite cool. This would go to show that a very low temperature is not necessary in the cold storage. If the honey will remain firm in a cool room the problem will be solved. The room must be cool and *dry*. None of the honey need be kept on display in a warm store where it might melt down, daub shelves and counters, and attract flies. Large printed placards would remind the consumer that a stock of the honey is kept on hand.

THE TEXAS FOUL-BROOD LAW.

Almost every State where bee-keeping is carried on to any extent is interested in foul-brood legislation, either for the eradication of the disease or to prevent the introduction of it into the State. Here in Texas only a few localities have been troubled with this disease; and where the bee-keepers have taken hold of the matter the disease has been stamped out. This interest on the part of the bee-keepers does not always prevail, however, and nothing but the most stringent measures will bring about any results in eradicating foul brood when it has taken a foothold. For this reason a foul-brood law is needed.

We have such a law here; and as many of the Texas readers of GLEANINGS have asked me in regard to it I will give it place here. I would urge all of our bee-keepers of Texas to give it a careful study.

TEXAS FOUL-BROOD LAW.

HOUSE BILL NO. 293.

AN ACT to provide for the protection of honey-bees against foul brood and other contagious diseases, and providing that all bee-keepers report to the State Entomologist when infectious diseases exist; providing for collecting the expense of eradicating the disease, and fixing the charges upon the owner of the bees; providing for the extermination of all contagious diseases; and providing penalties for the violation of this Act.

SEC. 1.—*Be it enacted by the Legislature of the State of Texas,* if any owner of or any person having control or possession of any honey-bees in this State, knows that any bees so owned or controlled are affected with foul brood or any other contagious disease, it shall be and hereby is made his duty to report at once said fact to the State Entomologist, setting out in his report all the facts known with reference to said infection. The State Entomologist shall have full power in his discretion to order any owner or possessor of bees dwelling in hives without movable frames, or not permitting of ready examination, to transfer such bees to a movable-frame hive within a specified time. In default of such transfer the State Entomologist may destroy, or order destroyed, such hives, together with the honey, combs, frames, and bees contained therein without recompense to the owner, lessee, or agent thereof.

SEC. 2.—The State Entomologist shall prescribe such rules as may in his judgment seem necessary for the eradication of all contagious diseases of bees; and if at any time the Entomologist finds, or has reason to believe, that the owner or keeper of any bees, or the owner of any apiary, has refused, or is refusing to comply with all or part of any such regulations, then and in that event the State Entomologist is hereby authorized to inspect said bees, and, if necessary, burn diseased colonies, appliances, and honey, and do any and all things necessary in the premises to eradicate foul brood or any other infectious disease of bees.

SEC. 3.—When any owner or possessor of bees shall fail to carry out the instructions of the State Entomologist, as set forth in Sections 1 and 2 of this Act, the State Entomologist shall carry out such destruction or treatment, and shall present to the owner of said bees a bill for the actual cost of such destruction or treatment. In the failure of the owner or possessor of such bees to pay said bill within thirty days after the delivery of the same to himself, tenant, or agent, or within thirty days after mailing the same to his usual postoffice address, the State Entomologist shall certify to the County Attorney of the county wherein such bees are located, the amount and items of said bill, and the County Attorney shall file suit for the recovery of said account. All moneys recovered by the County Attorney for such destruction or treatment shall be paid into the hands of the County Treasurer, to become a part of the fund for the carrying-out of the provisions of this Act.

Sec. 4.—If any owner or keeper of any diseased colonies of bees shall barter or give away any infected bees, honey, or appliances, or shall expose any other bees to the danger of infection of the disease, or shall refuse or neglect to make report as provided in Section 1 of this Act, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not exceeding two hundred dollars.

Sec. 5.—The fact that the season when young colonies of bees will leave the mother colonies is near at hand, that there is no existing law properly governing colonies affected with foul brood, creates an emergency and an imperative public necessity, requiring the suspension of the constitutional rule which requires bills to be read on three several days, and the same is so suspended; and this Act shall take effect and be in force from and after its passage; and it is so enacted.

Pat M. Neff, Speaker House of Rep.
Geo. D. Neal, President Senate.
Author, Hon. Hal Sevier.
Passed House, March 20, 1903; ayes, 112; nays, 0.
Passed Senate, March 30, 1903; ayes, 25; nays, 0.

It will be noticed that the matter is placed entirely in the hands of the State Entomologist, with full power to act upon the measure. We are very anxious to keep the State free from this dread disease; and while this law may not be as efficient as it might be it will help much. More will be said about this matter later.

Editorial
By E.R. Root.

THE early spring which seemed to be so propitious along in March is going to prove to be a late one in most localities. So far as we can gather from reports, bees have gone through the spring well, although brood-rearing has not progressed as rapidly as it has done at other times. At this writing, April 28, the weather is opening up very fine, and the bees are busy bringing in pollen.

DISTINGUISHED VISITORS AT MEDINA.

WE have just had the pleasure of a visit, although a short one, from Mr. and Mrs. Thos. Wm. Cowan, of the *British Bee Journal*. They were on their way to their residence in California, from which they have been absent for some time.

Mr. Cowan needs almost no introduction to the readers of GLEANINGS. He is the inventor of the Cowan honey-extractor, and various other devices. Besides being the editor of the *British Bee Journal*, and Chairman of the British Bee-keepers' Association, he is the author of the "British Bee-keeper's Guide," of which 40,000 copies have been printed in English alone. Not only this, it has been published in *eight different languages*. Notwithstanding our A B C book has had a larger aggregate sale in English, yet Mr. Cowan's Guide has the honor of being the *only* bee-book that is almost world-wide in its influence.

Mr. Cowan is also the author of a beautiful scientific work on "The Honey Bee." This has gone through two editions, and, besides, is also printed in two or three different languages. Mr. Cowan is, without doubt, not only the most widely known bee-keeper, but the best-posted man on both scientific and practical apiculture in the world. Knowing this, American bee-keepers will always be glad to do him honor.

COUNTER-ARTICLES VS. DIRECT RETRACTIONS OF COMB-HONEY LIES.

MR. W. A. SELSER, partly under the direction of The A. I. Root Co. and partly under that of the Honey-producers' League, has been writing various articles on honey as a food, particularly on the general subject of comb honey and the impossibility of its manufacture. He has interviewed quite a number of publishers and editors, and in most cases he has been fairly successful, either in securing direct retractions or counter-articles giving the truth about honey.

Mr. Selser remarks in one of his late letters that publishers do not like to admit that they have published an untruth in their columns, because they don't like to confess to having published nonsense or a lie. But it is often very easy to get them to accept a counter-article that does not in any way refer to the first one, but which gives the facts from the standpoint of the bee-keeper. Mr. Selser thinks (and I believe properly) that sometimes it is not wise to give prominence to the original untruth by even mentioning it—that it is often best to ignore it entirely, and then give a readable article which the publisher will be in duty bound to accept and place before his readers as prominently as possible.

SOME CORRECTIONS ON THE SWARTHMORE METHODS; THE SIBBALD NON-SWARMING PLAN NOT NEW.

THE following letter, received from Mr. E. L. Pratt, will explain itself:

> I wish to thank you for your kind criticism of the "baby" and Swarthmore methods in general, given on page 361; there is one or perhaps two points in need of immediate correction in your report, however, lest bee-keepers make a failure of introducing the virgins and condemn the plan. I refer to the number of hours to elapse before the virgins are run in. In your report you say wait from 12 to 24 hours, which is entirely too long. In my book I set 8 hours as the limit of time. Virgins should be run *directly* into the boxes within 6 to 8 hours. If you wait 24, many will be lost. You recommend that the beginner, "to be on the safe side," use an introducing-cage. In doing this the chances are even greater for serious loss of virgin queens at making-up time. When the nuclei are established, however, the introducing-cage is necessary, or other means of protecting a queen from being balled.
>
> You will pardon me for the suggestion, but I feel that success in the use of mating-boxes will be materially aided by making these corrections at once. Do not in any event, recommend caging the virgins when first making up the boxes, for many will be lost and the plan will be condemned.

In your last note on "Wintering Baby Nuclei" you say, "While that might be done in the mild climate of Philadelphia, it would *not* do *at all* in a colder climate." Our winters for the past two years have been quite as cold as yours, and it is my belief that, if these boxes will winter here, they will winter in Medina. I have a report from a gentleman in England who has succeeded in wintering his boxes on T's in open ground, with no special preparation. Other bee-keepers were asked to try the experiment, but are yet to be heard from.

The "Sibbald" non-swarming plan, mentioned from the *Review*, has been used by us for several seasons in our work at queen-rearing; and by reference to our circulars you will see that this was published by us long ago, and is quite satisfactory. It has been a part of the Swarthmore method of cell-getting for the past three years, and is also fully explained in the little book, "Cell Getting," now about ready for mailing.

Swarthmore, Pa., April 2. E. L. PRATT.

I still think that baby nuclei could not be wintered here in Medina, for we can not winter even full colonies in single-walled hives outdoors with any degree of success. By looking up the isothermal lines of average temperatures for the United States I find that Philadelphia has the same temperature as Frankfort, Ky., or St. Louis, Mo. The former is 258 miles south of us, and the winters there are nothing what they are here. You may have as cold days in Philadelphia as we have here; but it is not so much extreme cold as it is long-continued moderate cold that has to do with the wintering problem.

The basic principles of the Sibbald non-swarming plan, as you will see by references elsewhere, are not new. But none of the other plans so far given are exactly the same as the Sibbald.

A GOVERNMENT BEE-BOOK FOR FREE DISTRIBUTION.

FARMERS' BULLETIN No. 59, "Bee-keeping, by Frank Benton, in Charge of Apicultural Investigation," will shortly be issued from the Government Printing-office, Washington. I hold in my hands the advance proof pages of the newly revised bulletin. It has considerable new matter, having been increased by one signature from 32 to 48 pages. The edition will consist of 10,000 copies, which will be immediately available for free distribution to applicants in the order in which the requests are received.

By referring to page 3 of the table of contents we find that a number of new subjects have been added, as well as some old subjects that have been considerably revised. All parts of the text which are either new or considerably changed are covered in the following headings:

Page 8. Overstocking.
Page 10. Pollination of fruit and seed crops.
Page 12. Gentle bees.
Pages 14-17. What race of bees to choose.
Page 19. Adding shaken bees to swarms.
Page 21. Shaken or brushed swarms.
Page 25. Russian or hairy vetch.
Page 26. Sulla or Sulla clover.
Page 30. Use of comb foundation, not artificial combs.
Page 32. Correction of artificial-comb-honey reports.
Pages 40 41. Utilization of brood, honey, and wax from foul-broody colonies.
Pages 42-43. Bee paralysis.
Page 45. Legislation and National Association.
Page 46. Journals.

I have read quite a number of the changes, and note that they are brought clear up to the times. The general subject-matter, so far as I am able to go over it, seems to be orthodox according to the latest methods and practices.

The matter that interests me particularly, however, are the two emphatic denials, one on p. 32, the other on p. 34, that there is such a thing as manufactured comb honey on the market, or that it is possible to put out such a product. These statements, occurring in a government bulletin just as they do, are authentic, and can not possibly smack of any interest in bee-supplies or of a bee journal. As a natural consequence, when these references are fired at offending editors they will carry weight.

On p. 45 the subject of legislation and the worthiness of the National Bee-keepers' Association are presented in such a way as to enlist the support of bee-keepers in general.

As I understand it, this is only one of several bulletins and pamphlets that will be issued from time to time relating to bee culture; and in this connection I should like to speak of the good work Mr. Benton is doing in silencing these comb-honey lies by writing interesting articles on the general subject of honey, comb honey in particular, and the impossibility of its manufacture as has been so often alleged. A very excellent article of this kind appears in a late number of the *American Agriculturist*. Indeed, the editor having had the question propounded to him as to whether comb honey was manufactured or not, very properly referred this to the Apicultural Expert in Washington, who, in return, wrote a splendid article which was published. Still another article appears in the same publication, by Mr. Benton, on the usefulness of bees in the pollination of plants.

The hearty co-operation of the Apicutural Expert in the government with the new Honey-producers' League already organized will mean much to the bee-keeping interests of the country in showing the uses of honey and killing the old comb-honey canard that has ever and anon been showing its ugly head.

APICULTURAL NOMENCLATURE; SHORT EXPRESSIVE TERMS.

DR. MILLER, in one of his Straws in a late issue, in referring to the Sibbald non-swarming plan, speaks about giving "one brood" to a colony, meaning, of course, one frame of brood. The shorter term is expressive, and would never lead to any confusion, and I would suggest that our correspondents adopt the term. While we are about it, instead of saying "bottom-board" why not say "floor," as proposed by Mr. Pettit? Another expression that has come to be practically universal is "queenless," referring to a colony without a queen. But when we have the opposite condition we have been in the habit of using the circumlocution "a colony with a queen." Mr. Geo. W. Phillips, in his book, "Modern Queen-rearing," uses the term "queenright," which is almost as short as "queenless," referring to the opposite condition. If our correspondents will permit us we will shorten these phrases down to some of the terms already suggested.

HOW PURE FOODS ARE PLACED UNDER THE BAN OF DISTRUST.

IT has been stated that the average man is more capricious, timid, and more subject to panic over his food and drink than almost any thing else. Some of the late scientific articles for popular reading, while confined very largely to the actual facts, have a tendency to create general distrust in nearly all lines of pure foods that are capable of adulteration. Reputable manufacturers and honest producers over the country generally are beginning to feel the effects of these articles, because they have been copied widely, fearfully distorted, and commented on in the most sensational manner by the average daily press. The consumer reading these distortions will not dare to buy any more canned goods or syrups, much less honey, because this food is reported to be very generally adulterated. The result has been a general "panic" among consumers. Even ripe fruits have been placed under the ban of distrust, because, forsooth, somehow the story got into circulation that a "poisonous fungus" was affecting the cucumbers, and that even tomatoes might cause "locomotor ataxia," and that often heads of lettuce would be the nesting-place of "deadly vipers." The trouble is, it is sometimes wise not to tell the *whole* truth, for the reason that yellow journals desiring something sensational to "fill up space" will take that truth, garble it, and make a mess of lies out of it. That is exactly what they have done regarding honey. There can be no doubt at all that producers of both comb and extracted honey have been heavy sufferers.

FOUL-BROOD LEGISLATION THE PAST WINTER.

ATTEMPTS have been made in the various State legislatures during the past winter and spring to get foul-brood laws in several of the States where the disease exists and is making progress. I have already referred to the bill that passed both houses of the Missouri legislature, but which was finally vetoed by Gov. Folk. This is the first time a foul-brood bill has ever been killed by a governor; and it goes to show the great importance of having the chief executive properly posted as to the nature of such a measure before it goes before him.

I have before me a copy of the recent law that was passed in Kansas, based on what is known as the county plan, a plan that provides for an inspector for each county upon petition of a certain number of bee-keepers. As originally presented it was a much better measure than what actually passed. The salary of the inspector was cut down from $3.00 to $2.00 a day, and the number of petitioners was increased from 5 to 25. Each one of those petitioners must be an actual resident of the county, and a bee-keeper. If there are only a dozen bee-keepers in a county, and the disease is raging in the apiaries of one of them, it would be simply impossible to get an inspector. In this respect the smart legislators pretty nearly (if they did not quite) nullified the law in many, if not a majority of the counties. In other respects the law is very good; but all county laws are inferior to those that give jurisdiction over the whole State to one man who will be something more of an expert than might be picked up in one county. In Kansas, or in fact in any State, it would be hard to find a man for $2.00 a day who would be willing to leave his bees and incur the possible enmity of some of his neighbor bee-keepers in his efforts to enforce the law. The original draft of the bill provided for $3.00 a day, and this was somewhat better.

A bill has been presented to the Pennsylvania legislature providing for the appointment, by the governor, for two years, of two inspectors of apiaries, for the whole State, who shall be practical bee-keepers, and who shall be skilled in the knowledge of the disease and its treatment. It further provides that the inspector or inspectors receive $100 per month. This amount would secure the services of good men. In other respects the bill is an excellent one; and if it finally passes, it goes without saying that the disease will be eradicated in the speediest manner possible. This is in marked contrast with the weak Kansas law.

So far as I know, the following States have foul-brood laws of some sort:

New York, Ohio, Michigan, Illinois, Wisconsin, Texas, Colorado, Kansas, Nebraska, California. Bills are or have been pending in Pennsylvania, New Jersey, Maine, Minnesota, South Dakota, Idaho, Washington.

I should be glad to have both lists corrected by our subscribers. If any of the States where bills have been pending have finally passed laws, will our subscribers in such States notify us? In the last list, some of the legislatures may have adjourned, and with that adjournment have gone all hopes of foul-brood legislation for the present. There may be other States that have presented foul-brood bills, but so far I have not received notice.

THE NON-SWARMING METHODS GIVEN IN THIS ISSUE.

ATTENTION is directed to the various articles on the Sibbald or the modified Sibbald plan of non-swarming, presented in this issue. These various procedures may be somewhat confusing to the beginner; but the practical bee-keeper will be able to sift out which method or combination of methods will give him the best results. The essential principle of all the plans is the catching of flying bees by jumping a pair of hives over their neighbor, putting it on top, moving it at right angles to it, and a few feet away, or moving it away entirely. *Take your choice.*

GENERAL
CORRESPONDENCE.

THE HERSHISER NON-SWARMING SYSTEM FOR OR WITHOUT INCREASE.

How it Resembles the Sibbald Non-swarming Plan; their Points of Difference Explained.

BY O. L. HERSHISER.

Referring to your editorial discussion of what you have styled "The Sibbald Non-swarming Plan for Increase," pp. 358, 359, it seems to be unnecessary for you to admit that Editor Hutchinson has made a "good scoop," inasmuch as you published in your journal for May 15, 1903, p. 435, one of my series of articles on comb-honey production, which contained a description of my non-swarming system, which is practically the same as the one described by Mr. Sibbald. In fact, the essential distinguisning features and manipulations described by him are identical with those advised by me, and the points wherein he slightly departs from my system are immaterial; and right here it may be observed that all scientific apiarists make proper exceptions to general rules to meet the peculiar local conditions. The differences between my system and what he has described are:

1. He waits until queen-cells are started before making the shift, the supers being on the hives prior to the manipulations, requiring the removal of the super and an examination of the combs to discover whether or not there are queen-cells present. I build up my colonies to great strength by the use of double brood-chambers, which, with plenty of good stores, proceeds much more rapidly than with the single story, and make the first shift when both brood-bodies are full of bees, and just a short while prior to the time when they would swarm naturally, at which time there will be no chilling of brood as a result of the division. This period varies in different localities and with different seasons. With well-wintered colonies and in a favorable season the first shift might be made in apple-bloom time, in apple-growing localities, especially if the interim between apple-bloom and white clover affords a continuous light flow of honey. It is unnecessary to make an examination for queen-cells when the proper time arrives for making the division.

2. When Mr. Sibbald makes the first shift, in taking the frame of brood from the parent colony he must make sure, by examination, that the queen is left therein. That can be done only by searching until you find her; otherwise you are not sure that you will leave her in the parent colony. By my method I drive her into the lower brood-body with a few puffs of smoke, and, as I've never known a failure to accomplish this desired result by this method, I think it may safely be styled infallible. Thus no tedious search for the queen is necessary.

3. Another inconsequential difference is that, at the time when honey commences to be brought in rapidly, and after about all the brood has emerged from the combs in the upper brood-body, I drive or shake the bees into the lower body, at which time I substitute the first comb-honey super for the upper brood-body, using the latter for an extracting-super for this lower brood-body which has been removed.

In conducting an apiary for both comb and extracted honey the system has the merit of obtaining the largest possible yield; and the comb honey is especially fancy, as the sections are not put on until the honey-flow is near or quite at hand; hence they will not be propolized so much as they would be if left on the hive a great length of time.

My non-swarming system, as announced nearly two years ago, is superior to the same as modified by Mr. Sibbald, just in proportion to the time saved in not being obliged to make examinations to ascertain if queen-cells are present; the time and annoyance saved in not being obliged to hunt for and find the queen, when making the first shift, to be sure she is left in the parent colony; and the great advantage in having the very strong colony by reason of the use of a double brood-body, giving every facility for rapid breeding during the fore part of the season to supply a multitude of field workers for the season when they will be of the greatest use to us.

Those who are opposed to shaking at all times need not do so by my system. When substituting the super for the upper brood-body, drive the bees and queen into the lower brood-body with a few puffs of smoke. The field bees remaining in such upper story, after it is placed on the parent hive, will return to the hive under preparation for comb-honey production.

My comb-honey colonies being supplied with young queens just at the opening of the main honey-flow, reared in the same colony, together with a brood-chamber supplied with narrow strips of comb made from starters, offers a practical safeguard against swarming. These narrow strips of comb in the brood-chamber keep the pollen from going into the sections.

The preferable way of supplying young queens to the new colonies is to rear queen-cells from our choicest stock for this purpose, thus improving the whole apiary, and getting the queens to the laying age at the season best suited for this system. As the object of this system is to prevent swarming, it is inadvisable to unite the old colony with the old queen to the new one. If that is done there would be the likelihood of a return of the impulse to swarm, especially in a long-continued honey-flow, by reason of the presence of the old queen.

The other manipulations described by Mr. Sibbald are surprisingly identical in substance with mine. I refer particularly to the scheme of removing the parent colony from side to opposite side of the old or to a new stand in order to augment the field-working force of the comb-honey colony. The basic principle of this non-swarming system announced by him being the same as the one announced by me in Gleanings, as above stated, it will be seen that he has been anticipated by nearly two years in its announcement; and that the "scoop" is clearly on the other fellow will be readily seen when the description of my system, developed and used by me, and published in 1903, is read in connection with this and your recent editorial discussion of the same.

The practice of this system in the production of extracted honey is especially advantageous, whether increase is desired or not. After the first shift of the lower brood-body and queen to one side, and the substitution of the brood-body containing frames with starters therefor, allow it to remain until the new queen has emerged, after which she may be confined below by a queen-excluding honey-board. You will be surprised to see how fast the honey will come into this hive, containing field workers in great numbers and no brood to nurse.

Buffalo, N. Y.

[The two systems of non-swarming, the Sibbald and the Hershiser, are somewhat alike, and I should perhaps have noted the similarity when I described the Sibbald plan in our March 15th issue; but on referring to Mr. Hershiser's article on page 435, May 15th, last year, I see that the plan is somewhat obscured in the mention and discussion of several other plans for getting the colonies in prime condition for comb-honey production; for that was in reality the subject of the article, the plan of non-swarming mentioned being only incidental and a part of a larger system of management. As to who may have priority in having first described the plan under discussion, it is a little difficult to say just now. Several have written that they have tried it and that it is all right. One correspondent in particular (Swarthmore) says he described it in one of his circulars a number of years ago. See his letter in the editorial department of this issue.—Ed.]

IS THE SIBBALD PLAN NEW?

Infinitely Inferior to the Brushed-swarm Plan. The Chambers Plan of Non-swarming.

BY J. E. CHAMBERS.

In the March *Review*, the article by H. G. Sibbald, entitled "Something that Promises Better than Shook Swarming," was read with interest, but I failed to see any thing of much real value in it. Imagine my surprise to see in Gleanings that you think this motherless method likely to prove superior to the brush or shook-swarm plans that have been tried and found so valuable. But as one long familiar with the latter plan, and by no means a stranger to this old new plan of division, I desire to call your attention to the fact that I described a plan in Gleanings for Nov. 15, 1903, much like it, but with this important difference: I drew the working force from two full colonies instead of one; and, instead of a cell due to hatch in perhaps ten days I gave a laying queen from one of the colonies; and, by using two colonies thus, I was often enabled to get both sections and combs partly drawn before the swarming season came on. I also wish to draw your attention to the following points of advantage that this plan offers over the Sibbald method: First, it gives twice the force of workers to begin with, and I claim that this large force will be ample for twenty days, and, if given enough breeding room, will need no reinforcing either by shaking or your jumping process. Second, I claim that, with a laying queen in the hive, there is no desertion after the bees once settle down; but with only a cell and no open brood it goes on continually. Third, a swarm with a laying queen can be trusted to build comb anywhere; but a motherless one, never. Fourth, such a swarm as I have described will store more first-class section honey in ten days than a motherless one will in a month. Fifth, there is no trouble looking to see if queens have mated or got lost, and supplying laying ones to the queenless. Sixth, these big swarms do not get the swarming fever again, for the reason that all have become field bees before there is enough brood to induce swarming again. Seventh, such colonies are in a more natural and favorable condition for the perpetuation of their existence than is a motherless one.

Now with regard to the requeening of colonies when practicing this method, I have told how it was done, in the columns of Gleanings, more than once, and it is exactly as you state in your description of the Sibbald method; but I have never claimed that it was new or original; neither is this Sibbald method new or original—*that* I well know for I have been familiar with it ever since I knew how to draw combs, brood, and cells from colonies preparing to swarm in order to make increase; in fact, the one suggests the other; and if you care to look up my article in Gleanings for Nov. 15, 1903, you will see that the Sibbald method is very near what I described there, with the difference that I have already mentioned, and, certainly, I must have known something about it or else I am a fine anticipator. Now, do not understand me to say that I lay the least claim to Mr. Sibbald's method, for I am not that kind; but I do insist that it is infinitely inferior to the brush swarm, for the production of honey; and while it may suit some apiarists in certain localities, yet for the majority it will not prove satisfactory.

In conclusion I will say for the benefit of those who may not be able to refer to

Gleanings for a description of the plan I have spoken of, that, briefly stated, it is this: All colonies are arranged in pairs; and if the season is favorable a week or ten days before the swarming season comes on, put a set of frames containing foundation on one of these colonies, and on the other a case of sections. If some honey is coming in these will be partly drawn by the time cells appear. Care must be exercised lest brood be put in the partly worked-out combs. As soon as you are ready, move one of these hives on to a new bottom-board and put the partly drawn comb on the old board, and on this put the case of sections taken from off the other colony. Now close up the hive and look up one of the queens in either of the old hives; shake her and a few bees into the new hive; put the comb back, and move both old hives to new stands. As soon as the old bees have been mostly drawn from the old hives, give the queenless one a young laying queen, and the work is done. But if no increase is wanted, put the queenless one on top of the other. It is not necessary to pay any attention to these young bees for a week; but at the end of that time examine; and if there are any cells, destroy them or brush part of the young bees into working colonies—no jumping, no shaking, no motherless colonies, and only one after-examination, and such a colony for strength!

Vigo, Texas.

[I have looked up the reference given by our correspondent, but discover only one point of similarity between his and the Sibbald plan—namely, the catching of flying bees from other hives. Besides the points of difference he mentions, there is no jumping of one hive over or around the other; but the hives that contain the flying bees are moved entirely away. It is not much wonder that I did not recall the similarity, for they are alike in only one feature.

As to the merits of the Chambers plan, I am of the opinion that the average beekeeper will succeed better with this than with the other, because the hives that surrender their flying bees to one on the old stand are taken entirely away, thus avoiding any confusion of entrances as might be the case with the Sibbald plan.—Ed.]

THE SIBBALD PLAN.

Modified Somewhat by Putting in Three or Four Frames of Brood to Keep the Old Hive from Swarming.

BY J. W. GUYTON.

I will say, Mr. Editor, that I tried the Sibbald plan two years ago and last year, in a modified form however. I put in three and four combs of brood, and as many empty combs as I had, or filled out the complement with foundation starters. My reason for taking three or four combs of brood was to get enough of the young adhering bees to prevent a swarm from issuing from the old hive. I set the new hive about one foot from the old hive to the side, facing the same way on the stand of the old colony.

I changed the old hive over every week. I made the change about an hour before sunset, so only a few bees would change hives at a time. I did this to prevent the bees from interfering with the queens in either hive. I did not get any more section honey by my plan the first trial, and made a signal failure last season. I think I see my mistake now from your interpretation of Mr. Sibbald's plan. My idea was to make a new colony and to get most of the field bees in the new hive, and to reduce the inclination to swarm. By my plan I succeeded in curtailing the swarming impulse, but I kept the working force balanced after the first week, which was wrong, if I should get section honey in the new hive. I also put a super on the old colony after removing the one that was there first.

Levita, Tex.

EXPERIENCES WITH THE SIBBALD NON-SWARMING METHOD.

Placing the Old Hive behind the New One, with the Entrance Facing the Other Way.

BY HAROLD DAVENES.

I am pleased to be able to give you my experiences during a test of the non-swarming article on page 358 of your paper, having tried the method in the spring of 1902 and 1903. On the stand where No. 1 stood I place No. 2. No. 1 is now put to one side or back of No. 2, at least two feet, with the entrance pointing in the *other* direction. Now from No. 1, if increase is desired, I take two frames of brood and put them in hive No. 2, with two or three frames of foundation and division-boards on the outside. I now cage a young queen just beginning to lay, and place her between the frames. I found in many instances the desire to swarm was not wholly checked in No. 2, the newly made swarm absconding with one of their young queens, leaving a handful of bees in the hive for my trouble. The super of No. 1 is put on No. 2, and the trick is done.

In about three days I move No. 1 up close to No. 2, with the entrance all the time in the other direction to that of No. 2. In about ten days I take two ⅜ strips and raise the hive-body from the bottom-board of No. 2, making an entrance both back and front of the hive for warm weather. No. 1 is now removed to a new location, the young field workers left behind entering the rear of No. 2. If I were to jump No. 1 over No. 2 the entrance could then be in the same direction as No. 2.

In 1903 I tried this on a few stands. No. 1 was moved to one side as before, giving No. 2 a frame of brood to play with. The old queen in No. 1 is removed and a young queen just beginning to lay introduced. In a few days, when eggs are found deposited in the brood-cells, No. 1 is put back on the old stand, and the super is replaced, the frame of brood in No. 2 is removed, the bees left in the hive given a jolt and a smoke, and deposited at the entrance of No. 1. Should the bees be vicious I take a sheet of newspaper, punch a few air-holes, take off the cover on the super of No. 1, spreading the paper in place; put on hive-body No. 2 with its bees, and place the cover. The bees eat their way through the paper and find the way to the brood below, and the queen is not disturbed.

Last spring I tried another scheme, and am going to try the method again at some future time.

When the bees were ready for the extracting-super a frame of brood was taken from below, placed in the super with a started queen-cell. A zinc honey-board was put between. In due time the young queen hatched; but if the old queen is not a valuable one the zinc is pulled out. From nearly sixty stands, over eighty per cent of the old queens were dead in front of hives within forty-eight hours.

As the season was a failure in honey-production, I do not call this a fair test. I had no swarming, and extracted this spring over 700 pounds of honey after leaving the supers on the hives all winter.

I may mention the result of the remaining hives in this test. In two cases the queen-cells were torn down, and in the others the young queens were balled. For the short time consumed, this beats all the methods I have ever tried.

I pin all my faith on the young queen, and, if given elbow room, she is not going to leave her new and happy home. I think locations and seasons, and perhaps temperature, may have a great influence on the outcome of these methods.

Sierra Madre, Cal., April 11.

SIBBALD NON-SWARMING PLAN A FINE ONE.

In regard to the article in the *Review*, by Mr. Sibbald, and yours in GLEANINGS on "Something that Promises Better than Shook Swarming," I should like to state that the plan is a fine one, but it is not necessary to wait for queen-cells to be started, but all strong colonies can be treated thus at the beginning of the main honey-flow; and, further, when you move the old colony to one side, turn it with the entrance in the opposite direction for a day or two, as this will keep the field bees from going into the old colony where their queen is, and this is a very important part of the operation.

D. R. KEYES.

Montgomery, Ala., Apr. 4.

[Your last suggestion I believe to be indeed important. Let all those who try the plan take note.—ED.]

THE BIGELOW EDUCATIONAL BEE-HIVE.

The Need of It.

BY EDWARD F. BIGELOW.

Insect Study—Bees in Particular.—It is in the world of insects, vast and varied, its members innumerable, beautiful, and almost miraculous in transformation, that the naturalist revels. The entomologist proclaims the attractions of his favorite pursuit as does no other naturalist, and no other disputes his claim. The most exuberant language fails to do full justice to the subject. Kirby and Spence, years ago, wrote as follows:

> "Were a naturalist to announce to the world the discovery of an animal which, for the first five years of its life, existed in the form of a serpent; which then, penetrating into the earth and weaving a shroud of purest silk of the finest texture, contracted itself within this covering into a body without external mouth or limbs, and resembling more than any thing else an Egyptian mummy; and which, lastly, after remaining in this state without food and without motion for three years longer, should, at the end of that period, burst its silken garment, struggle through its earthy covering, and start into day a winged bird—what, think you, would be the sensation excited by this strange piece of intelligence? After the first doubts of its truth were dispelled, what astonishment would succeed!
>
> "But you ask, 'To what do all these improbable suppositions tend?' Simply to arouse your attention to the *metamorphoses* or *transformations* of the insect world, almost as strange and surprising, to which I am now about to direct your view — miracles which, though scarcely surpassed in singularity by all that poets have feigned, and, though actually wrought every day beneath our eyes, are unheeded alike by the ignorant and the learned because of their commonness and the minuteness of the transforming objects."

All this, bear in mind, is in praise of what is already known. Of the charm of discovering these facts, the entomologist James Rennie wrote:

> It can never be too strongly impressed upon a mind anxious for the acquisition of knowledge, that the commonest things by which we are surrounded are deserving of minute and careful attention.
>
> If it be granted that making discoveries is one of the most satisfactory of human pleasures, then we may affirm without hesitation that the study of insects is one of the most delightful branches of natural history, for it affords peculiar facilities for its pursuit.
>
> "If you speak of a stone," says St. Basil, one of the Fathers of the church, "if you speak of a fly, a gnat, or a bee, your conversation will be a sort of demonstration of the power of Him whose hand formed them, for the wisdom of the workman is commonly perceived in that which is of little size. He who stretched out the heavens and dug up the bottom of the sea is also He who has pierced a passage through the sting of a bee for the ejection of its poison."

This very large order of animal life, Professro L. O. Howard states, "comprises nearly 30,000 described species; but the enormous number of undescribed species . . . would probably swell this number to more than 300,000."

Of this vast number of insects, the one pre-eminent in human interest is probably the honey-bee. Says Morely, "Both ends of the honey-bee have always been of singular interest to us, and this for exactly opposite reasons. It is a double-ender—one end the friend, the other the enemy of man."

This supreme interest in the bee, Prof. John Comstock expresses less humorously but no less truthfully when he says:

"The honey-bee, through its useful products, has been known and cared for by man for centuries. Philosophers have written about it, poets have sung its praises, and naturalists have studied it during past ages, until there is probably no other insect with which man has such an intimate acquaintance."

In face of this overwhelming interest, the study of the honey-bee, so far as apparatus is concerned, has fared the worst of all at the hands of the scientists or the educational naturalist. They have sold the master study, and relinquished chief title in it for a bag of gold. In the hands of commercialism bees have fared well. Father Langstroth lifted out the honey; Bingham and Root smoked out the bees; Coggshall and Dixie brushed them off; Porter kept them out of their home; Cowan whirled out the liquid honey, and Danzenbaker and others made it convenient to capture comb and all. Alley caught the queens and drones; Doolittle, Miller, and Boardman said, "Let us feed them when they are weak, so that they can work better for us;" Hershiser and Mason bottled the honey, and Sturwold exhibited it to the public, all saying, in effect, "Bring up your money, and eat." Then they all shouted in chorus, "There's money in it! keep bees, and get rich!"

One manufacturer tells of "millions and millions of dollars' worth of honey taken from bees annually;" boasts of a plant with a working capital of $300,000, and pictures the honey product in the United States every year as "making a solid trainload" fifty miles long. Where, all this time, is the educational naturalist who *loves the bee* as well as its product? Resting quietly, and perfectly willing, apparently, to let commercialism dominate the entire subject.

He will spend his money on elaborate bamboo rods, nickel-plated heads of ingenious devices, with fine-mesh nets for the flying insects, approved drag-nets, and devices for water-insects, elaborate breeding-cages, collecting boxes; plaster of Paris, and glass and other mounts; costly storing-cases, and other elaborate paraphernalia. He will devise ingenious methods for observation of ants as has Comstock, Fielde, and others. But what will he do for the bee, the charm, the supreme interest of entomology? Nothing. No catalogue of entomological supplies with which I am familiar, though picturing a great variety of breeding-cages for other insects, has one word to say in favor of studying bees, or even a device to show for facilitating the investigation of their habits. That has been left to commercialism, and commercialism cares for nothing but the money end of the arrangement.

In a life devoted more or less to the study of bees as a *Nature Study* topic of supreme merit, I have more and more felt the need of *an educational bee-hive.*

This need has presented itself to me in the twofold relation of workmanship and convenience. To remedy this defect I have devoted all my spare time for several months past. Let us examine these needs.

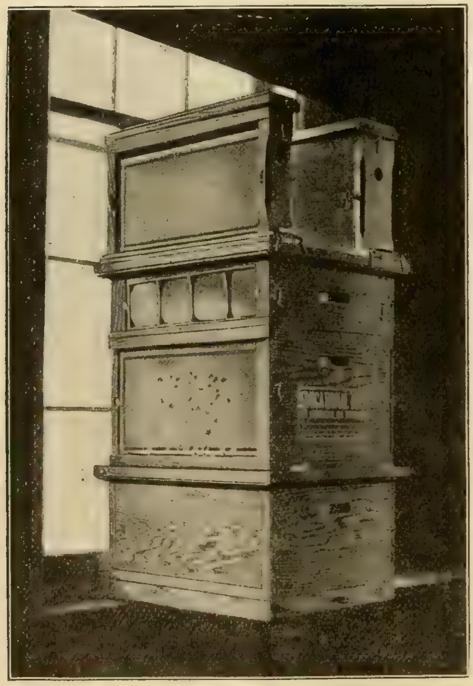
1. *Workmanship.*—A leading book on *Nature Study* in the schoolroom and home, pictures a clap-trap drygoods-box affair that would not for a moment be tolerated as an apparatus for the study of physics in any laboratory in the land. Even those who cry the loudest for home-made apparatus in physics would not accept such a crude thing as that. A poor farmhouse would demand better workmanship in a box to put behind the stove for holding firewood—it surely would if the photographic illustration does the subject justice. A prominent magazine devoted to life in the country has two or three times pictured arrangements for holding a single frame of bees in a window. If we are to judge from the illustration it must have been the poorest piece of furniture in the house. The tone of the article and the appearance of the illustration convey the impression that the writer felt a pride in the fact that the whole thing was cheap and home-made. But why cheap and home-made? Is the subject unworthy our attention? or is it unworthy our best treatment?

Why does that periodical not publish articles on "How to Make a Dog-kennel out of a Drygoods Box;" "How to Make a Cage for Your Canary out of Old Umbrella Ribs;" "How to Tear up Old Rags into Ribbons for the Neck of your pet Cat"? or—but why argue further? The articles admit the interest in bees as a home ornament. Then why insult the bees with any thing short of *the best?*

In a leading university and in a prominent museum I have seen a crude "observation hive" visited by greater crowds of people than were the show-cases of specimens, and have heard them excite more exclamations of interest and wonder. Yet the glass in one of the doors cost more than the entire hive; indeed, the hives in both places were such ramshackle affairs that an up-to-date bee-keeper would hardly consider them worth a place in his back-yard apiary. The probabilities are that such an apiarist would chop them up for kindling-wood. Yet why this "economy" of the university or the museum? Are not live bees of more interest than pinned beetles or skeletons of muskrats? If they are, give them a "case" at least as good.

2. *In utility and convenience.*—The so-called "observation hive" has consisted of eight or ten frames with glass on both sides, with or without covering doors, exposing usually about two-thirds of one side of the outermost comb. The real work of the bees is on the inner combs; but, waiving that disadvantage, a hive that exposes to observation from one-twelfth to one-fifteenth of its comb surface (the glasses at the end are useless) is not an observation hive; it is an *aggravation* hive.

Another form of so-called "observation hive" has been a simple affair with glass sides for holding one frame of comb temporarily removed from a hive, with the bees upon it. For temporary exhibition of one comb this has its place; but as an observation hive it is a misnomer and a failure. From their unnatural surroundings, and from the fact that they have no facilities for clustering between protecting combs for warmth, and especially since the bees soon die in it, my opinion is that the contrivance would better be named a tribulation or *devastation* hive. Another apparatus, originating in England, and intended to secure the desired result, has been made of two series of frames with four or five in each vertical row! Could anything be more absurd as a matter of ingenuity, or further removed from the natural condition in the natural hive? I can imagine nothing.



THE BIGELOW EDUCATIONAL HIVE.

These facts, united with the belief that the honey-bees are unexcelled in interest from the nature-study standpoint, have impelled me for months to study the subject, and to plan what now seems to be an ideal educational bee-hive, and I have intrusted its manufacture to The A. I. Root Company, who have had extensive experience in building hives for the honey-gatherer; and who are in full sympathy with the nature-study conditions, and who, furthermore, have unexcelled facilities for fine workmanship. The hive is to be made in finely finished pine, ash, or oak, and glazed in first-quality glass.

The essential feature is an *observation chamber* backed by a force of bees in regular body hive with glass sides.

As the physicist has a battery or motor from which he takes out electricity for such experiments or observations as he may desire to make with special apparatus, so here the bee naturalist is provided with the ability to make observations and experiments.

The chamber is supplied with a padded division-board, which serves to divide it into two hives, and which is also useful as a background for photographing results obtained in either apartment. The bees may be readily isolated as a separate colony in either section for artificial feeding, for rustic comb-building, or for other purposes. The chamber is deeper than the body of the hive, so that the entire extent of the regular frame or other comb-support may be seen or photographed.

Under each half-chamber is an ingenious arrangement of slot and bee-escape. When the thin metal cover is drawn entirely out, bees go in or out freely; when half in, the bees go out only, and the chamber is soon cleared. Push the metal plate entirely in, and the bees go neither in nor out, but may be instantly removed to another hive for experimental purposes. Not a bee can then take flight to freedom, and there is not the slightest possibility of being stung. By using one or both of these sliding covers, the hive is readily made into two or three hives. Holes in the top are supplied with caps and with jar feeders.

Observation Super.—A regular Danzenbaker super with thirty-two four-by-five sections is the third story of the hive. This is supplied with observation sides, which give clear exposure from the top to the bottom of the outer sections.

Removable Hives.—Above this are two traveling hives for temporary exhibition. Bees are let into this by slot and escape device (as is done with each half of the observation chamber), so that bees may be carried from place to place or be used for class exhibition, or for nuclei experiments, and without the slightest danger of loss or injury either to the insects or to the apiarist. Both have the regular mouth opening for use as a single isolated hive. Many experiments that can not be made in the divided observation-chamber can be performed in these removable hives.

Magnifying Feeder.—This is on the end opposite the mouth of the main hive, and is so arranged that the observer, looking through a powerful lens, faces the window at which the whole hive is located. The top and back of this feeder are of glass. Diluted honey or simple syrup is put in small quantities in a trough one-eighth of an inch wide. Bees stand on a elevated glass shelf, and each one takes the sweets from the narrow space between the two glasses, as it takes the nectar from the flower. Collectively they have the appearance of "feeding at the trough like little pigs."

The powerful lens slides back and forth so as to give a view of any portion of this trough, wherever "the best feeding" is in progress. The lens is set one-eighth out of center from top to bottom, so that, by turning the supporting-block, a range of adjustment of one-fourth of an inch up or down is given. A delicate focusing adjustment is provided by a screw with a range of three-fourths of an inch. This lens shows the heads and proboscides of the feeding bees in a wonderfully interesting manner.

The bottom of the feeder is provided with slot and slide as an escape device, previously described, and the whole is easily taken from the hive by the slides and carried to a window for closer observation, or it may be passed around to members of a class or to visitors.

Artifical Feeding.—Between this magnifying-feeder and the end of the hive which has the mouth opening there are two jar feeders with perforated caps. These are so arranged that one is over each half of the observation chamber. The hive is also provided with a Doolittle division-board feeder that may be placed in the main hive, in either observation chamber, or in the one or two removable hives. From these last the cover may be taken off and the feeder put in without the escape of bees, provided the sliding cover is previously pushed in half way, so that the portable hive is cleared through the Porter escape.

MANNER OF SETTING BEFORE A WINDOW, WITH SASH RAISED AND ENTRANCE CUT IN TEMPORARY BAR.

Flying Cage and Observation Box Hive.—This attachment, like the magnifying-feeder, is not supplied regularly with the hive, but is regarded as an extra. It will be found very serviceable in a variety of experiments. Three sides are of glass. The other has non-rustible wire netting. This netting is placed next to the main hive in place of the tube entrance. A long slot through the lower part of the frame matches the mouth opening of the main hive. The purpose of this flying cage is to provide a place in which the bees may fly when the hive is set up in a room away from a window for observation, instruction, or exhibition. This will be found very serviceable for use at fairs, and for temporary exhibition in schools, also for advertising purposes, and when placed with the entire hive in the show-window of a store.

This cage is hive-size, and takes on the top the regular cover, the feeding-board, with the main hive or supers. At the upper and lower portions are places for feeding. The inside of the hive is regularly fitted with supports for regular frames, or for rustic sticks. In this manner it may be used in imitation of the original bee-trees, the whole being covered with paper, cloth, or other material for making the interior dark. When this covering is removed, the entire inside of the bee-tree with rustic cross-sticks may be readily seen.

When the cage is not thus used in connection with the main hive it is turned around so as to face in the same direction as the other hive, and both are then side by side at the window, with two tube entrances as two separate hives. A large baseboard is provided for the hives when used in combination. This cage is so designed that it may readily serve many other natural-history purposes. It is unexcelled in convenience as a transforming-cage for lepidoptera or for aquatic insects. For the last-mentioned purpose bowls or dishes of water to hold the aquatic specimens are placed in the lower section.

When used as a larval feeding-cage, pots of earth with growing plants, or broken branches placed in bottles of water which are set in the earth in the pots, may be placed in the lower section.

The main hive is fitted with the Danzenbaker entrance-stops. The bottom-board is clamped to the main hive by the Van Deusen hive-clamp.

The alighting-boards of the tube entrances take Alley's queen and drone trap, bee-guards, etc. It is recommended that the Root queen-rearing outfit be purchased in connection with the hive.

Another very useful accessory is an observation lens five inches in diameter. This lens, and also that of the magnifying-feeder, are made by The Bausch & Lomb Optical Company, of Rochester, N. Y., and are of the highest type of efficiency and workmanship.

With the complete hive, the magnifying-feeder, the flying-cage, and observation box hive, the Root queen-rearing outfit, and the observation lens, facilities are afforded for every phase of apiarian observation, experiment, instruction, pleasure, or exhibition. At last we have an observation hive worthy the subject. The optical parts are by one of the most famous and extensive manufacturers of lenses in the world. The woodwork and bee-appliances are by the largest manufacturing establishment of apiarian apparatus.

I have not tried to produce a cheap or simple hive, but rather one which the bees and their friends have long merited. I am confident that all concerned will be pleased.

Contrary to the advice of many friends who have known of my prolonged study and work on this hive, I have refused to take out a patent. On the contrary, I have arranged with the manufacturers to have the hive and all its accessories placed on the market at the cost of production. Considering the detail and workmanship, I regard the price as barely covering cost of labor and materials. I am confident that the hive-manufacturers must look for profit to the sale of their regular goods to the new converts which I am sure this hive will bring to the fascinating field of apiculture.

Profit and the spirit of commercialism in nowise enter into the production of this hive. I have regarded the labor spent upon it as a labor of love. To my fellow-students and lovers of nature I cordially bestow and heartily commend "The Bigelow Educational Hive." May the study of these wonderful insects afford you as much pleasure and instruction as they have afforded me.

Stamford, Ct.

CO-OPERATIVE ADVERTISING.

BY C. A. HATCH.

[It is but fair to say that the following article was the result of some extended deliberation on the part of Mr. Hatch for some time back. He finally submitted it to manuscript, and the same was received by us just prior to the launching of the Honey-producers' League. We were at once struck by the general similarity of the plan outlined by Mr. Hatch and that evolved by Messrs. York, Hutchinson, and others, and which is now well under way. It only goes to show how different people working at the same problem will sometimes arrive at practically the same solution.—Ed.]

With our honey markets depressed, and all the leading market centers overloaded, it is time we looked facts in the face and thought of means of relief. Either there is an overproduction of honey or not enough people are using it to consume our product. When we know that there are thousands of people who do not see honey from one end of the year to the other we think we are safe in assuming that overproduction is not the matter. Then what is the matter with this large non-consuming number? Some do not like honey; others like it but are afraid to buy for fear of getting something impure and adulterated; while others, ignorant of the merits of honey are led to buy glucose mixtures by showy and misleading advertisements; and it is to this class our advertisements should appeal.

IS IT PRACTICAL?

Why not? There are hundreds of papers that go to thousands of readers every week, day, or month that are just the mediums for such a campaign of useful education. It can be tried experimentally in a daily of some of the smaller cities, at no great cost. Say put half a column or even less in for two weeks and note the result.

THE COST.

Could the National devote its funds to any better purpose? And could there be any better inducement for outsiders to become members than to show results along this line?

HOW DONE.

But some one asks, "How is this to be done? Who is to write these advertisements, and place them?" Have we not men in our own ranks skilled enough in the use of the pen to formulate an advertisement of a pleasing and taking kind? Or a premium might be offered for the best statement of the value of honey as a food in an article of stated length.

ILLUSTRATION.

Pictures might be used to show bees at work, how they pollenize flowers; also to show the interdependence of flowers and bees. These would interest and educate, and thereby overcome prejudice. Then let the reader know where a wholesome article of honey can be obtained by saying the secretary of the National will be pleased to mail him, on request, a list of names of bee-men who have the pure article for sale.

DIFFICULTIES.

Poor honey and good honey poorly handled would be the greatest difficulty in the way of success. In order to have uniformity it might mean that all shall be inspected and graded by a proper officer of the National; and it goes without saying that uniformity of packages would be very desirable.

DISHONESTY.

All men are not honest, and bee-men as a class may be more honest than some others; but there is no use shutting our eyes to the fact that *all* bee-men are not honest, and these are the ones who would make trouble for the society. But if they could not be controlled they could be expelled, and their names dropped from the list of members, so the society would not be held responsible for them.

PRICES.

It might be well to add in this connection that it would, perhaps, be necessary for a committee of the society to name a price for different grades of honey, below which a member could not sell, so that a customer could order of the nearest bee-man to him. Any bee-keeper having sold out would have to send notice to the secretary so his name could be dropped from the list. We would not expect any increase of price at first; but after the demand had grown beyond the supply, then there would be a natural raising of prices.

Richland Center, Wis.

NAIL-SPACED FRAMES.

What is Glucose? How to Detect it in Honey.

BY J. L. HYDE.

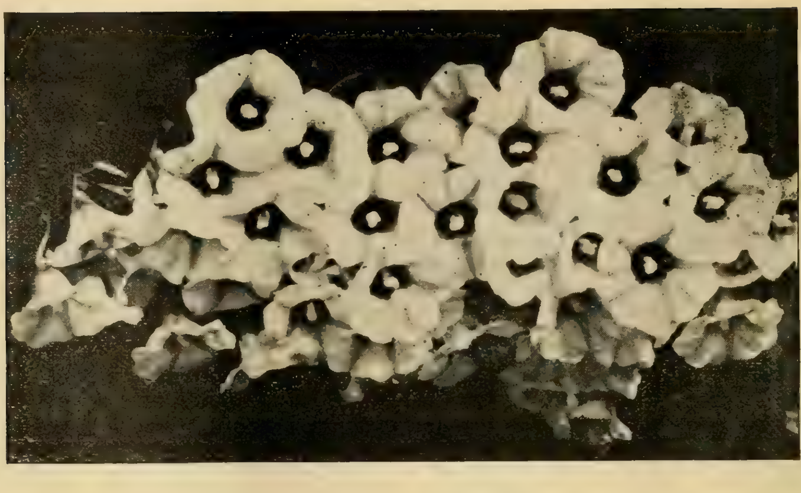
On page 1158, Dec. 15, you wonder if the doctor is the only one who uses nail spacers to any extent. I would say that, for the last ten years, I have used no other. They are furniture nails, though, that are cone-shaped, and will drive in just far enough so it makes the spacing the same as the Hoffman. They are too expensive unless you can get them at a bargain somewhere. I bought mine for $1.00 per 1000 and less at one time. Could not these nails be made of tin instead of brass? or a wire one, made with the same shaped head, of iron or steel? But on the end of the frames, I use, for spacing, blind-staples, which are very small. These drive into wood without splitting, and are just as good to keep the frames from sliding endwise. My frames have the same width bottom as top-bar (⅝ inch thick and 1⅛ wide), and are dovetailed to the end-bars without any projection to the top-bars; so I space them at the bottom on the bottom-bar the same as on the top-bars. My hives are made without rabbets, and have T tins fastened across on the bottom of the hive for the frames to rest on. These tins should be fastened so as to have the post part up so the frames will rest on the blade only. I can reverse my hive by fastening extra tins on the top of the hive the same as are on the bottom; and after turning my hive over I take off the bottom ones. After once reversing, the bees have the combs fastened so well to the frame that they need no wiring. I have no frames that are wired, and I can throw them about the same as the wired ones; and if I want to move my bees the hives are all ready without fixing them up on the inside. I like the way I have my hives fixed; but there are others, and each one likes his way best.

There are some things I should like to learn from GLEANINGS this winter. One is, to know when honey is adulterated, without studying chemistry. I think a bee-keeper should know all about honey as well as bees. How long does it take each kind of honey to candy? how long does it take glucose to candy? I have some glucose that I have had about five years, and it looks the same as when I first got it—no candying about it. I know it will get hard and flint-like, but I never saw it candy like honey. It may, though, when mixed with honey.

Providence, R. I. J. L. HYDE.

[I will explain to our readers that Mr. Hyde is one of our old correspondents of

A TRAIL THROUGH A CUBAN JUNGLE WHEN THE CAMPANILLA BLANCA IS IN BLOOM



THE CAMPANILLA BLANCA, OR WHITE BELLFLOWER.

years ago; but we have not had very much from him of late years.

There are several features about his frame and its adjustment in the hive that are good. It is practically a standing staple-spaced frame, the frames resting on uprights of T tins. This would certainly minimize to the lowest point the smashing of bees and propolis attachments. The only trouble is, frames of this kind would have a tendency to topple over against their neighbors because there would be nothing to hold them together when one is pulled out for examination. I went over this field somewhat myself years ago, and decided against a standing frame unless it were shallow or unless it had some sort of device like the Quinby hook to hold it in an upright position when separated from its fellows.

When I said I wondered if anybody else was using nail spacers like Dr. Miller's I meant the ordinary wire nail. The furniture nail, I well knew, had been used for some years. About ten years ago there was a discussion between Dr. Miller and myself regarding the merits of this particular spacer, and I am not sure but our correspondent Mr. Hyde was at the time one of the advocates of the device.

Chemically, "glucose" comprises quite a group of sugars having the chemical formula of $C^6H^{12}O^6$. When chemists speak of glucose they generally mean it in the broad sense; but in commerce, glucose and grape sugar are known as two different articles, although chemically the same. The former is a thick syrupy liquid, and the latter is a hard dry substance with a fine mealy con-

DRYING COFFEE IN SANTIAGO DE CUBA.

sistency, but so hard that it has to be broken up with a hammer. Commercial glucose granulating? I think there must be some mistake. I have always understood that it would remain liquid at ordinary temperatures. Possibly you have in mind grape sugar, which is one of the sugars known under the general head of "glucose" from the standpoint of the chemist.

How long it takes each kind of honey to candy, is a question than can not be answered except in a very general way. Ordinary alfalfa will granulate first, and *might* turn from the liquid to the solid condition inside of sixty days, while clover and basswood might take six months, a year, or even more. As I have before said, candying or granulating of honey is not a *sure* proof of its purity. A certain percentage of glucose will delay the candying process in honey, but will not prevent it. Some years ago, for experimental purposes I prepared seven or eight glucosed samples of honey, the percentages of glucose varying all the way from 10 to 75, I think. After three or four years I found all the samples candied; but the degree of solidity varied according to the amount of glucose that had been put in it in the first place. I may say this, however, that glucosed honey will candy a little differently from pure honey; but just how differently I can not explain on paper.

How shall we detect glucose in honey, without chemical analysis? Largely by the taste. Call on your candy-maker and get a small quantity of commercial glucose. Taste it a good many times. After a spoonful of it has been in the mouth for a few minutes (I can not say just how long) one can detect a sort of brassy taste that is quite characteristic. When one once *learns* to recognize this peculiar brassy "twang" of glucose he will be able to detect it almost unerringly when the stuff is present in honey—at least *I* was able to do so, and so have others. For the purpose of experiment I had one of our men prepare some samples of glucosed honey for me to test. While I did

The old five-hundred-gallon caldron, all that is left of the old Osborn bee-yard. The first bee-yard of American hives in Cuba.

A CHARACTERISTIC EXTRACTING SCENE IN WESTERN CUBA.

not know the exact percentages I could point out which sample had a very small amount, which a large, and which a medium amount, by the *degree* of "twang" I could feel in the mouth just after having tasted it.

Another simple method, although I do not think it is reliable, is to pour a little alcohol in a supected sample of adulterated honey. If, on stirring, it shows a pale cloudy white, there is probably glucose present. If it does not show this appearance it is not necessarily proof that the honey is pure, so the test works only one way. But even that one way, in connection with the taste test, might put one on his guard when buying honey. I will admit that there are some very highly refined glucoses that have no brassy twang; but they are high-priced, and probably would not be used as adulterants. —Ed.]

AN AMERICAN BEE-YARD IN HAVANA PROVINCE, WIPED OUT BY FOUL BROOD.

CUBAN NOTES AND VIEWS.

The Best Places to Establish Apiaries.

BY LESLIE BURR.

If one believes what he generally hears about Cuba (from the man who has land for sale), it is one great garden, and every square foot is of the richest land. But the fact is, forty per cent of the land is worthless for agriculture. One of the parts of the island in which bee-keepers are very plentiful is the Vuelta-Abajo, Pinar del Rio Prov., which is the tobacco section of Cuba. Here is also found the greatest amount of the campanilla marada (the pink bellflower). The cause of this is the tobacco business, as tobacco seed is sown on virgin soil. Large tracts of land on both the mountains and the coast are cleared every year, just to grow *one* crop of tobacco. When the plants are big enough to be transplanted they are pulled and shipped on cars, mule-trains, and ox-carts, to where the tobacco is to be grown. Those tobacco-seed beds are, by the next season, covered by the vines of the campanilla marada, which springs up wherever the soil has been cultivated.

The extracting scene is a common sight in a honey-house in Western Cuba. One reason for their working this way is the construction of the honey-houses, which are low, with flat roofs covered with tarred paper. Those buildings at noonday under the tropical sun are like ovens.

It is also natural for a Cuban to work without a shirt, no matter what kind of work he is doing. When it gets a little warm, off comes that garment.

Coffee plantations are among the good locations of Cuba. Coffee blooms three or four times during the season; and as it is grown in the mountainous parts of Cuba, and nearly all mountainous regions of the island are good bee locations, a yard situated on the edge of a coffee plantation is one of the ideal locations.

Foul brood is one of the things that thrive in Cuba. It exists from one end of the island to the other. The probable reason for there being so much of it at present is the light honey flow for the last two years.

Casanova, Cuba.

[The illustration of the white bellflower is a remarkably good one. The large areas of this vine afford a very pretty view, when in full bloom, especially to a bee-keeper. It is not unlike the morning-glory of the North.—Ed.]

Conversations
With
Doolittle

DIAGNOSIS FROM THE OUTSIDE.

"Hello, Doolittle! I have come all the way from Missouri (by letter) to have a conversation with you about what we may know of the conditions existing inside of a hive without opening it."

"Very well, Mr. Wolfe. Is there any thing special that you have on your mind that you would like to talk about along that line?"

"The first thing I should like to know is, what may we conclude when we see bees bringing in much pollen at this time of the year?"

"That such a colony is in a prosperous condition."

"Excuse me; but what do you mean by a prosperous condition? I know what it means for a man or a family to be in a prosperous condition, and can guess what it would mean with the bees; but I would rather have you explain more fully."

"A colony that would be in a prosperous condition May 5th to 10th, in this locality, would be a colony having a good prolific queen with about 8000 to 10,000 bees, together with from 10 to 15 lbs. of honey, and from 4 to 6 L. frames of brood. Such a colony would be considered A No. 1 here, and would be carrying pollen and water at a rapid rate on every pleasant day at this time of the year. And if you were familiar with the inside of a bee-hive you would know that such was the condition of any colony you looked at that was thus working, even though the same was in a box hive or gum, where you could not get at them to inspect the inside of the hive; and an experienced apiarist can tell very closely what is inside each or any hive in any apiary by simply passing by the entrance of the colony or colonies."

"Thank you. And what may we conclude when a colony brings in little or no pollen?"

"If it is a colony having about the number of bees spoken of before, and little or no pollen is being gathered, while the bees seem listless about the entrance, then we may be almost sure that such a colony is queenless, or, at least, has no laying queen."

"Why do you add that last part?"

"Because colonies of bees sometimes lose their queen in early spring, when they have some little brood. And in such a case they will raise a queen from the brood left when the queen died. Any colony having eggs, small larvæ, sealed queen-cells, or a virgin queen, can not, properly speaking, be said to be queenless; and colonies in this condition are not given to a vigorous carrying of pollen after the brood left by the dead queen is sealed over."

"Would you send for a queen where you had a colony which carried little or no pollen?"

"No; I would open that hive and see what was the matter, for they might have sealed queen-cells, or a young queen, which, in either case, would be likely to cause them to reject any queen you might try to give them—especially so if they had a young queen. But you may be deceived in regard to the strength of colonies. Some colonies when quite weak will have quite a number of bees stationed at the entrance to guard it from robber bees, especially if the race is of the Italian strain; and such colonies would appear to be carrying little pollen, when really they would be in a prosperous condition in all points except their fewness in numbers."

"How can we tell in regard to this matter from outside appearances?"

"By the way they treat the bees which come in laden with pollen, and from the loads they carry. Bees carrying pollen, where a colony is queenless, generally come in with light loads, and are rushed up to, when alighting, by the bees about the entrance; while those of a small colony having a good queen carry as large loads as any of the strongest prosperous colonies, and, when alighting, run into the hive without any ado as regards themselves or the bees about the entrance. I think I understand you here. Next I wish to know what it means when we see a lot of light-colored bees bobbing about the entrance. Are they young bees out for exercise?"

"If the time of day is from noon to about two o'clock, 999 times out of 1000 they will be young bees taking their first flight and marking their location. If at other parts of the day, I should suspect robber bees of the golden Italian race, for robber bees are often taken for young bees, and young bees for robber bees, by those not fully conversant with the workings of bees in front of the hive."

"Is there any way I can know for certain in this matter?"

"Yes. Catch any bee which you suppose may be a young bee or a robber, as the bee is coming out of the hive, and either kill it and dissect it, or gently press upon its abdomen. The robber bee will have honey in its honey-sac, while the young bee will not. It is easy to tell for certain in this way; and after you have found this out once, if you are a close observer as regards the actions and ways of the two in front of any hive, you can decide at once at any future time."

"Next I wish to know what it means when we see two bees hauling and pulling at a third until they fall off the alighting-board. Are they fighting or only fooling?"

"When bees are really fighting it may be known by dead bees being drawn out in front of the hive, and others all drawn up and dying from being stung; and in this real fighting it is very rare that more than one bee clinches another. It is, 'sting as quick as possible.' I have known from a quart to a peck of bees to be killed in less than fifteen minutes when a real fight was on."

"Then you think what I have seen is only fooling?"

"If the bee the two were pulling at was one that had been hovering about the hive, hoping to sneak in and get a load of honey, being caught by the home bees when so doing, they pulled at it to tell it that, if the thing were insisted in, harsher methods would be used. In other words, the bee was being 'flogged' to keep it from trying to enter the hive for thieving purposes. But if you see this pulling being done when no bees are hovering about the entrance, as if trying to slip into the hive, and especially if the bee which is being pulled at is shiny, with a somewhat swollen abdomen, you may know that the colony has a touch of that disease known as 'bee paralysis;' and when such disease is well settled on any colony you will see scores of bees being thus hauled and pulled about, while the diseased ones will look as if the hair of down had been all scraped and pulled off from them."

"Will there be other bees that will be shaking, and down in the dirt in front of the hive, kicking their legs about (some nearly dead, and others being able to get up and then tumble down again), when the colony has this disease?"

"Yes. And there will be dead bees with swollen abdomens and shiny bodies down in front of the hive—at first, only a few; but as the disease increases, these dead bees will accumulate; and if the case is severe so the colony does not recover, the ground will be nearly covered with those dead and decaying bees, while the colony dwindles down to a mere handful and finally ceases to exist. But brood-rearing will be kept up remarkably and out of proportion to the number of bees in the colony as they grow weaker and less in numbers."

"That accounts for the actions of one of my colonies. I could not tell what ailed them. But I must be going now. I may come again with some more questions on the same subject."

Heads of Grain
from different fields

DOES DRY WEATHER AFFECT THE COLOR OF SOME HONEY?

Does dry weather affect the color of honey? This question is given in Stray Straws, page 1099; and according to my experience I must answer this question by saying yes. The weather affects the color of all honey gathered in this locality except linden. This honey is always water-white, whatever the season may be—hot and dry, or cool and wet. The weather has no effect on the color of this honey.

But clover honey, dandelion, and especially goldenrod honey, are always colored darker in a hot dry season than in a moderate or wet one.

As I read the above question in Stray Straws it reminds me of the season of 1895. That was a very poor honey year; and what little honey was gathered was of a very dark color. After the clover bloom was all gone in July or August (I do not remember exactly) we had some good showers. This brought up the goldenrods around the small lakes which are in reach of my bees; but by the time the goldenrods were in bloom the weather became hot and dry again, and the honey from this blossom was almost as dark as molasses, and tough and gummy as honey used to be after boiling an hour or two. I noticed this coloring of honey in several seasons, but not as badly as in 1895. The cause of this color I explain in the following way: I don't know whether I am correct in this or not. It is only what I believe about it. In a moderately good season the raw nectar in the flowers is more diluted with water, and the water repels the sun's rays in such a way that they have no power to burn and stain the honey. The nectar is carried to the hive by the bees, and the water is evaporated in the hive by the heat of both the sun and the bees, but without the reach of the sun's rays. In a dry and hot season there is not so much water contained in the nectar, and the rays of the sun reach the honey direct in the flower-cups, and burn and discolor it in the same way they do it with honey in a solar wax-extractor. Now, this nectar is taken to the hive and dried out by the heat of the bees. This double drying gives the honey the gum-like consistency that we find in honey gathered in a dry poor honey season. The fact that linden honey is never colored dark is because of the position of the flowers. The opening of these flowers is downward, and both the leaves of the tree and the flowers protect the nectar from the sun's rays.

I should like to hear reports from beekeepers in sections where raspberry bloom is plentiful as to whether they ever find raspberry honey colored by the action of the weather, for these flowers are in the same position as basswood-blossoms.

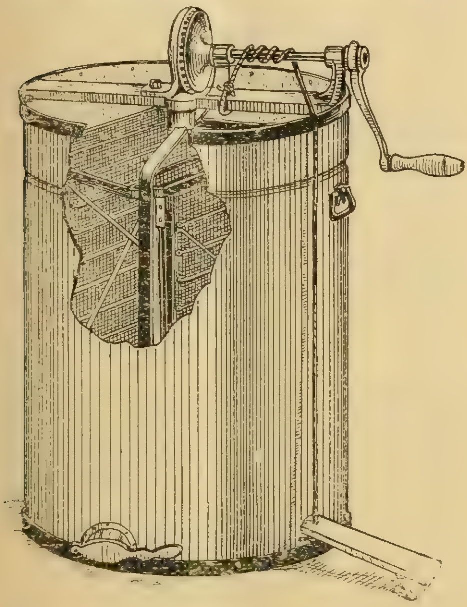
John H. Classen.

Manitowoc, Wis., Dec. 12.

[It is not entirely clear to me that the sun itself would affect the color of honey. Some substances it darkens and others it bleaches. I know this: That in a dry season we are more apt to have honey-dew than at other times. This article is generally dark, and a little of it mixed with white honey would tend to darken it. Over against this proposition is the fact that your basswood always remains light-colored. I give it up. Perhaps some correspondent can give us a better solution. While we are about it, it might be well to raise the question whether or not a dry season does darken extracted honey of some kinds.—ED.]

BRAKE FOR AN EXTRACTOR, FOR FIVE CENTS.

Take a piece of ½-inch manila rope, six feet long. Tie one end to the arm of the extractor under the shaft; then wrap it four times around the shaft, winding from you or the same way you would turn in extracting. Bring the loose end down outside the extractor, and let it hang. In turning the machine hold the rope loosely with the left hand; when ready to stop, pull gently on the rope and see it stop—no jar, no jerk, no arm-twisting work. This is worth $10.00 to any one with 100 colonies of bees in extracting. It can be worked by the foot by putting a board to the lower end.



Normanna, Tex., Jan. 4. C. A. BUTTS.

[We have given the above device a thorough test, and will say that the stopping is indeed accomplished without straining the arm, and without jerking or slamming the baskets. But it is quite important that at least half-inch rope be used, for the twisting strain is enormous, and any smaller size will be pulled apart like so much thread.

Of course, the shaft must always be turning in the direction in which the rope is wound, and even then it may be advisable to add a little resin or other gummy substance, to make the necessary amount of friction. Although this brake works nicely, it is somewhat a question in our mind whether it should be used. When the weight is on the treadle, and the rope begins to bind, there is a tendency to pull the shaft down toward the cross-bar. When the reel is stopped quickly in this way, the shaft gives almost $\frac{1}{16}$ inch; and, although there will be no danger of bending, yet the wear on the bearings and gears will be increased considerably.—ED.]

CANDIED HONEY AS EMERGENCY RATION FOR SOLDIERS.

Not long ago I went to the table tired, and did not seem to relish any food; and knowing I needed more energy to finish my day's work I consumed some nice candied honey, which, every bee-keeper knows, supplied the necessary energy. And as the honey was filling me with energy and satisfaction, I thought of the emergency ration furnished our American soldiers, and wondered if candied honey were not of a higher value than the ration now furnished. The present ration is composed of chocolate and cane sugar; or plain chocolate candy put up in a sealed package and carried in the haversack for any emergency.

Now, you bee-keepers who have honey to sell can consume some of it and use the energy in deciding whether it will be profitable to interest the government. If not, I know it would be profitable to educate the ever hustling American people as to the value of honey as a food, and that, if bee-keepers would use lots of printers' ink, they would never need to worry as to the sale of honey, or figure from the (then) market quotation whether it is profitable to sell.

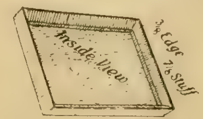
R. L. PENNELL.

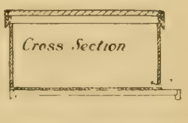
Greeley, Col., March 26.

[Honey is a pre-digested sweet; and if chocolates or cane-sugar preparations are a strong food, as undoubtedly they are, honey should be equally good for the purpose, and yet be much more readily assimilated. We may yet hope that, in the Elysian days, civilization will have advanced far enough to know and recognize the greater digestibility of honey as compared with other sugars.—ED.]

A HIVE-COVER THAT WILL NOT BLOW OFF.

I have sent you two drawings illustrating what seems to me to be an ideal cover. You will readily see its good qualities. The beveled edge underneath permits of its being "wedged on" the hive-body, so to speak, making it firm, and secure from blowing off in a wind-storm. HARRY W. CRAVEN.





Evanston, Ill., Feb. 21.

[Your form of cover would be very objectionable, in my opinion, in that, in damp weather, it would be wedged on the top of the hive so tightly it would have to be knocked off with a blow. Almost any tel-escape cover will not blow off if the rim sticks on two inches, and allows ½ inch of play all around.—Ed.]

HOW TO GET DRONES FOR MATING QUEENS FROM BABY NUCLEI AT A SPECIAL MATING-YARD.

A valued correspondent desires to make some definite crosses with different races, and writes:

"What I want to ask you is this: How can I best manage the *drones* for the mating-ground? I shall endeavor, of course, to have the mating-ground immune so far as undesirable stock is concerned. I propose trying the "baby-nucleus" plan for the queens. Would it be *necessary* to take a whole colony of bees to the mating-ground in order to get the right drones, or could I trap out enough drones and unite them with the nucleus the day before, and feel reasonably certain that all would be well? You see the little nuclei are very easily handled in an ordinary buggy, but a colony is a different proposition."

In reply I should say, subject to emendations and additions of the editor, that there is no absolute necessity of having a full colony if drones are taken as proposed with the baby nuclei. They will be cherished by any nucleus until its queen is fertilized. Of course, in proportion as a smaller number of drones if taken with a nucleus will there be a greater chance for delay and possible failure.

A possible compromise suggests itself, providing the same kind of drones may be continued on each mating-ground: Take a three-frame nucleus of queenless bees, well stocked with drones, and keep it in heart by an occasional addition of fresh brood.

If, however, only one mating-ground is contemplated, with different drones on different days, then it will be better to take the chances with drones as part of the outfit of each nucleus taken. C. C. Miller.

Marengo, Ill.

"GO WEST, YOUNG MAN;" A CHANCE FOR A HOME-SEEKER.

The interesting notice of a new bee-tamer, Feb. 5, in the Root family, and Pres. Roosevelt's good words on "home and family," combine to arouse my dormant soul to get up and speak out. Yesterday I found a bee-tree. Is that strange? Yes? Where I live is called the treeless, trackless, arid plains of the Rocky Mountain slope. I went three miles to the creek to get some fence-posts, and a little black bee licked the posts and started home. I followed, and found its nest in a large cottonwood-tree, 17 feet from the ground. There they are, slick-looking and wild. What shall I do with them? Let them alone and ask you to send me a gentle bee-tamer to teach me the science, and she shall have my interest (100 per cent) in bees, trees, choice claim on the finest of government lands, and all the benefits that go with new countries and pioneer home-building; yes, and bring her best fellow with her. I am not a young romantic bachelor, as you may suspect. No false alarm would I give; but to the youth and the mature man or woman, the new West still offers as good opportunities for willing hands to become real home-builders as it ever did—not all the same conditions that once existed, but sufficient variety to enable energetic youth or middle-aged persons to become real home-owners, rather than join that hopeless class of hoboes who seek only the gauze of wordly pleasure, as they call a life without an object. Who will be the lucky one to come and claim the new bee-tree, the new homestead, and the greatest of American honor, a free home-owner? This great valley plain where each day the wild antelopes chase each other over the few new farms, and the prarie-dogs chatter in surprise to see the daring pioneer stir the native sod, is destined to be densely peopled and intensely cultivated; and here the honey-bee will gather wonderful stores from alfalfa, which, like Samson's lion, yields both "meat and sweet."

Byers, Col., Jan. 22. J. I. Brown.

A JUG FOR A BEE-FEEDER.

I hereby send description of a bee-feeder that I think beats all others. It is just a jug with a lip on one side of the bottom, turned up with the exit-hole just below the surface of the lip. All you have to do to fill it is to stop the hole with the finger and fill the jug and cork it tightly. I got a potter living here to make it. H. C. Simpson.

Catawba, S. C.

[Such a jug would make a very good bee-feeder, with the advantage that it would not rust, and would last indefinitely; but they could not be sold by the supply-houses, for the simple reason that heavy freight and breakage would make them out of the question. Tin or wood is about the only material that can be used.

Those who are not located near potteries could drill a hole through the bottom of any ordinary jug, then mold around the hole a lip made out of Portland cement.—Ed.]

THE POPPY IN BOHEMIA; DOES IT YIELD HONEY?

In regard to the poppy, we have sometimes fields of it of 50 acres and more. The bees gather only pollen from it. It has no bad effect on bees. In Bohemia it is grown for the grain. It is used partly as food and partly to make oil; but we do not raise it to make opium of. R. Strimpl.

Networitz, Bohemia.

RUBEROID FOR HIVE COVERS.

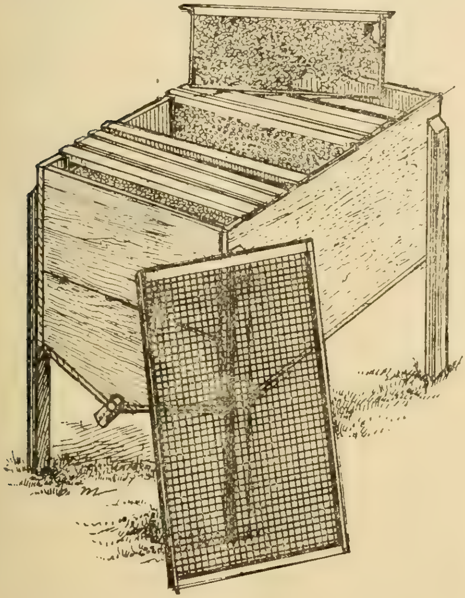
I notice in Gleanings, Mar. 1, Dr. Miller asked if any one has used ruberoid for hive-covers. I send two pieces that have been on hive-covers eight years, have never been painted, and it will last eight more and not leak. I am using it on 150 new covers this spring, and my covers are flat. You can draw your own conclusions.

G. BRUNDAGE.

Salisbury Mills, N. Y., March 8.

HOME-MADE UNCAPPING-BOX.

I enclose a rough sketch of my uncapping-box. The box is made of ⅞-inch pine, 20 inches wide, and 30 inches long, by 20×24 inches deep. It is lined with galvanized iron, and has a strip of pine on one side to wipe the knife off. The screen you see standing at the end goes in the inside, so that the caps can't drop on the bottom of the box. You see it is just the right height so you don't have to bend over while at work. The above works better than any thing else that I have seen.



Monroe, N. Y. HARLEY SMITH.

[In California this is a very common form of uncapping-box. If the uncapper is at any time ahead of the man with the extractor it will hold the extra combs and still allow the former to keep right on. Either you or our artist failed to show the cross-board on which the combs are uncapped.

It would be better to set the combs in the box cornerwise so that they could be picked up more easily.—ED.]

THIEVES DESTROYED ALL THE HIVES.

In our town there are only fifty voters to each saloon, and the result is distress, poverty, and crime. I had a few colonies of bees, and one after another was taken by thieves who took all the honey after wrecking the hives. All my hives have been destroyed in this way.

I would like to keep bees again, but how can I be protected from cold in winter and thieves in summer? I consulted GLEANINGS and your A B C, and find but little about house-apiaries. I have a fine location for bees, but can not keep them without winter and summer protection. Could the hives in a house-apiary be placed close against each other with their entrances on the same level? Would the bees mix and make confusion if the entrances were only the width of a hive apart? Can you help a fellow out?

E. VAN FRADENBURG.

Liberty, N. Y., March 2.

[One saloon to fifty voters! my, oh my! It is a wonder decent people can exist at all in such a place. No wonder your bees were stolen. Saloons are invariably the accompaniment of lawlessness. We hope you will have a local-option law in your State better than the one you have, whereby you can debar these nuisances out of your community. Then, and not until then, will you be able to keep bees in your yard in peace. At present your only solution of the question is a house-apiary. The hives outdoors should be placed inside, with a tube or channel way, connecting the entrance of the hive inside to the outside. Of course, it is desirable to keep the hives as far apart as possible. But I have been in house-apiaries where hives were crowded together in actual contact, and good crops of honey were secured.

The alighting-boards on the outside of the hives should be painted different colors, and each board should be differently constructed from the one next to it. A little ingenuity would devise quite a variety of alighting-places. Some of the entrances might have porticos and others only plain alighting-boards. One board might be narrow and the other wide.—ED.]

A NEW USE FOR BASSWOOD-TREES.

Basswood-blossoms dried in the shade and kept from the air are one of the best fever medicines for children (as any German doctor will tell you); and they are not so harmful in their effects as are quinine and gelsamine. I don't think you will find a single drugstore in Germany without a goodly supply of basswood-blossoms on hand; and it is a shame for the drugstores in this country not to have basswood-blossoms on hand. I think it would be healthier for all if they had more such good and simple herbs and teas in stock, and less patent medicine.

The only place I have found in this country where they keep basswood-blossoms is at Montgomery Ward & Co.'s, in Chicago, and they have to import it. Don't you believe it would pay poor people to gather the flowers? There might be a little industry in it.

A. BAUMANN.

Marquand, Mo., March 31.

[Please accept our thanks, friend B., for calling our attention to this matter. If there is a demand for basswood-flowers, as you state, they certainly ought to be furnished in our own country. I find Montgomery Ward & Co. list them at 35 cts. per lb., the dry blossoms. I asked our family doctor about it, and he said its principal value is for making an emulsion, something like that made from slippery elm. And this reminds me that, when I was a boy in my teens, I had a trouble with my eyes so that they swelled shut. After trying several things the doctor said we should scrape the pith out of some shoots of basswood and make an emulsion. This, when placed over my eyes as a poultice, very soon enabled me to open them. By all means, let us use roots, herbs, and blossoms in place of injurious drugs. We can rest assured that basswood-blossoms will never harm anybody, externally or internally, even if they do not do any good.—A. I. R.]

TAKING OFF SUPERS; BEES REFUSING TO STAY IN DANZENBAKER HIVES.

Being away from home last fall I left my supers on the hives, and, in fact, did not know they had to be taken off in the fall. and am not positive yet; if so, when should it be done in my case?

Can you tell why the bees would not stay in the Danzenbaker hive? I put in three different new swarms, and they left every time. Two of the swarms were very large. I never had trouble with the other hives. This may seem strange to you, but it is a fact. J. D. BARFIELD.

Metropolis, Ill., Feb. 12.

[There are some swarms that won't stay in any hive. In my own experience I have had some particular swarms that would immediately fly out of any hive where I placed them, even when I gave them a frame of unsealed brood. They were just bent on going off. In such cases it is advisable to shut them in the hive with wire cloth, and carry the hive down cellar and keep them there until they "cool off" or get over their mania to abscond. I do not think the hive in this case had any thing to do with it. In dozens of cases we have had our swarms stay in Danzenbaker hives as well as in any other hive. The case is probably an idiosyncrasy on the part of the swarm itself. It should be said, however, that an empty hive without combs, especially if no frame of brood be given, is not as liable to hold a swarm as a hive in which these essentials have been supplied.

The super should come off when the combs are sealed.—ED.]

LAYING WORKERS; WHAT IS TO BE DONE?

Last spring (May 29th) I hived a good swarm of bees in an eight-frame Dovetailed hive, Hoffman frames. They proved very poor workers. They had not gotten into the super by July first, and made hardly any surplus. At the end of the honey flow, or or at least by the first of October, they began to die off, and dwindled amazingly, long before cold weather came on. But they lasted through the winter, and on Feb. 21, when I examined them, seemed to have plenty of stores; but I noticed that the queen eluded my search. March 25th I made a second examination, and was cheered by the sight of brood, sealed and unsealed, but no queen. The words "high convex cappings" caught my eye as I skimmed the pages of the A B C, and led me to read the article on "Laying Workers." To-day I made a more intelligent inspection. Although there was comparatively little drone comb in the hive, the bees were very sluggish; brood irregular, next to top-bar; eggs, two in a cell; larvæ apparently two in a cell; cappings very high, like big brown blisters. I guess that proves the case, does it not? Query, how long has it been queenless?

I do not like to lose that hive. Has any smart bee-keeper devised a way of meeting the difficulty since the A B C of 1900 was printed? Will it better the case to insert a frame of brood from another hive with a well-developed queen-cell? or would it be better now to use this hive, which has plenty of stores and is well stocked with worker comb, for building up a new colony by frames from other hives?

AUSTIN D. WOLFE.

Parkville, Mo., Mar. 29.

[The case is a very clear one of laying workers. Just how long the colony had been without a normal queen would be hard to say. Some strains will develop these pests when the colony has been queenless only a few days. In the case of Italians the hive may go a month or six weeks and still not have them, while Holy Lands might show them in ten days or less. It would be all right to give the frame of brood with queen-cell; in fact, the giving of a cell alone is very often effective in bringing about a cure.—ED.]

WATERY CAPPINGS.

Do the three-banded Italians always make thin watery cappings on their comb honey? Experienced bee-keepers tell me they almost always do, but that the goldens do not, but cap it white. As I produce comb honey I want it white, as my customers do not like water-faced honey.

W. I. GREENOUGH.

Mechanicsburg, O., Feb. 20.

[As a general rule, black bees make a whiter capping to their honey than the average Italians, but the difference is only slight. There are very few strains of Italians that will make a water-soaked transparent capping to honey.

I know the claim has been made that five-banders make a white capping. I do not know why they should make any whiter face than the average Italians, because they are only a strain of that blood. Some extra-yellow stock that we had made cappings so thin and transparent that we killed off the queens, fearing that their drones might mate with some of our choice queens and cause trouble with our customers. On the other hand, I have seen some strains of five-banders that produce a white capping, but no whiter than was made by most Italians. —Ed.]

HOW MUCH HONEY PER COLONY?

There are a good many fruit-trees in my locality, and also a good many locust-trees, lots of white clover, and also peavine clover. I don't suppose there are over 50 colonies of bees within a two-mile circle. In a good season how much surplus honey should I get from a fair-sized colony in an eight-frame Dovetailed hive? Did you ever have any bees drown in the Doolittle division-board feeder? I have lost over a pint from one colony this fall. I got scared and quit feeding.

J. H. Stenger.

Whitcomb, Ind., Jan. 30.

[This is a hard question, as so much depends upon the management and the season. I should say, on an average anywhere from 25 to 75 lbs. of comb honey, and a third more of extracted.

We have had some complaint of bees dying in Doolittle feeders; but if directions are followed there will be no trouble. The remedy is to use a float, *i. e.*, a stick long enough and narrow enough to slip in the feeder. Perhaps you did not receive the directions.—Ed.]

GIVE THE CONSUMER THE HONEY THAT HE IS USED TO.

In looking over your issue of the 15th inst. my eye caught the title "The Prevalence of the Belief in the Comb-honey Lie." I now wish to endorse the remedy that Mr. Bender offers as being the most effective (in my judgment) of any that can be brought against the prevalence of derogatory stories concerning honey and its production.

The concluding sentence of Mr. Bender's communication reads, "After all, our best argument is a chunk of fine honey." I would add this qualification: "Yes! if the chunk of honey is the kind that the person's taste has been educated to; for the secret of satisfying any one with honey lies largely in this fact, that the kind of honey which he will pronounce to be pure must possess the taste that he has been accustomed to find in honey. The man who has eaten honey produced in Northern Illinois all his life, given a piece of the finest honey produced in Colorado would be very likely to pronounce the Colorado honey manufactured stuff providing he had heard of such a thing as being possible; yet no one method is sufficient for all emergencies, and it is well to explain error when occasion offers."

Chicago, Ill., Mar. 21. R. A. Burnett.

[Mr. Burnett is to a great extent right. A good deal of the foundation of the comb-honey lies is due to ignorance in regard to the various flavors of honey; but if it had not been for the comb-honey lie in the first place, and for the continued cropping-out of a new version of the same story, the general public would never have questioned the purity or genuineness of honey in the comb, and would be ready to accept any flavor without any hesitation. So after all it is the newspaper stories that are responsible for the distrust in any comb honey that does not taste like the product consumers have been used to.—Ed.]

IS IT BEE-PARALYSIS?

In one of my colonies a dozen or more bees are carried out each day that are so bloated as almost to resemble a queen. They are not dead when carried out, but live and struggle for even 48 hours, and occasionally recover enough to re-enter the hive. They do not resemble the paralytic bees, so often described, by getting black, but, on the contrary, look like perfectly healthy bees, full of honey, and chilled so they can move but slightly. They tremble every now and then, and draw up as if suffering from colic. Their tongue is invariably extended its full length. It is the only one in my apiary of 200 colonies that is unhealthy. Can you tell me what it is?

H. S. Philbrook.

Oxnard, Cal., Jan. 6.

[The symptoms you report describe very closely bee paralysis. In stages of this disease the bees are not black and shiny. If it is of long standing you will, after a while, see the black fellows showing all the other symptoms you describe. Better dostroy the colony or isolate it from the other bees, especially in a warm climate like yours. Bee paralysis is not particularly dangerous or destructive in a cold climate, but is often very destructive, and much harder to cure, than black or foul brood in a climate where the bees can fly almost every day in the year.—Ed.]

BEES DISAPPEARING MYSTERIOUSLY IN NOVEMBER.

A peculiar thing, to us at least, happened to some of our bees. A neighbor had a large nice colony of bees. The middle of November he went to place them in his cellar for winter, and every living bee was gone. He knew they were good and strong a week before, with no dead bees about the hive, while now there were only about 15 bees clustered in one corner, and all dead. No queen was to be found. They had left about 60 pounds of nice honey. Another neighbor, with seven colonies, lost three the same way. They were working nicely just a few days before. Four different men tell the same story, having had similar experiences about the same time in the neighborhood. Now, what happened to these bees? What became of these swarms? Why did they leave or disappear so mysteriously? They did not go into neighboring hives, for the first one mentioned was the only colony on the farm, and no other bees nearer than five miles.

These men came to me for the solution, and I gave up, having handled bees for years; but nothing like this ever happened. To you old bee-keepers this may be no mystery. Can you tell us? S. R. FERGUSON.

Sumner, Ia., Feb. 22.

[I am unable to account for this peculiar trouble. It may be some sort of disease with which we are not yet familiar. If the other colonies were affected, I should lay it to poison administered by some enemy of the owner of the bees. Sometimes a snake will cause a whole colony to vacate because it can crawl into the hive.—ED.]

HOFFMAN AND STAPLE-SPACED FRAMES.

On p. 298 Mr. Phillips enters into a detailed defense of the Hoffman frame. I have used that frame two years, and will cut off the spacers and substitute either staples or nails driven in the top-bar half an inch from the shoulder. The trouble that I come in contact with is that I kill many bees that would be saved by the use of the staple or nail spaced frame; and here in Central Kansas the bees carry in quite a quantity of propolis, and almost fill up the space on each side of the V, making it next to impossible to separate the frames, especially if the weather is cool, in which case the propolis is hardened to such an extent that the spacers will split off instead of separating, as they no doubt do in the warm climate of Jamaica, where propolis very seldom if ever becomes hard.

Aside from the spacer, I very much like the Hoffman frame In the matter of frames crowding together in the absence of spacers, in case the hive is to be moved, I fully concur with Mr. Phillips; but if a nail or staple be driven into the top-bar it answers the purpose of the V on the sides of the end-bar, and will seldom kill any bees.

Mr. Phillips states that a little smoke at the right place will drive the bees out of the way of the spacers, which is probably true; but by the use of the staple spacer this trouble is avoided, and in my apiary it would be quite troublesome to use smoke when I have all the frames of a hive separated, in looking for a queen or queen-cells, or when I go to put back the frames after extracting the honey. I was personally acquainted with Mr. Langstroth, who invented the movable comb; and in talking with him regarding the best and most satisfactory frame for all purposes and all localities he stated that the least possible space of contact in the matter of frames touching each other or the walls of the hive he had found to be the best. When I began the use of the Hoffman frame I tried to think it superior to any other; but my experience has compelled me to fall back upon the Langstroth, as above given. G. BOHRER.

Lyons, Kan., April 1.

STARTERS FOR WIRED BROOD-FRAMES.

If I use only starters can I wire the brood-frames the same as if I intended to use full sheets, and have the bees build the combs over them by a little watching to make them build them straight?

What color are the red-clover bees? I ordered two of an advertiser in GLEANINGS, and they were nearly if not quite as black as my hybrids. W. P. HAIGHT.

Nora Springs, Ia., Feb. 3.

[You can wire your brood-frames and use only starters of foundation. Bees will build over the wires so as to make good perfect combs.

The red-clover bees are what are ordinarily called three-banded yellow Italians. The bands are a dark yellow, not a bright—more like the regular imported stock. The black red-clover bees you refer to may have come from untested mothers, the progeny favoring very strongly the drones with which the queens were mated.—ED.]

COMBS BUILT TOGETHER; HOW TO SEPARATE.

I should like to ask now to manipulate frames whose combs are built from one frame to the other. I am going to clip the queen's wings, but can not get out the frames. JOHN BRANDT.

Erskine, Minn., Feb. 25.

[Where combs are built together as described, the only way to do is to blow smoke down between the combs pretty liberally, then with a long-bladed knife, preferably dipped in hot water, cut through the fastenings until the frames are clear and separate.—ED.]

A VENTILATING-FRAME FOR USE BETWEEN HIVE-BODY AND BOTTOM-BOARD, FOR CELLAR WINTERING.

For wintering bees in cellar I have a frame the size of a hive, about 3½ inches wide, that will fit the bottom-board tight. On the lengthwise sides there is a piece cut out which is covered with screen so as to give them all the air they want; when ready to take into the cellar I just lift them on the frame with bottom-board under. I have no trouble with bees coming out, and no dead bees on the floor. H. B. HANSON.

Christian, N. D., Feb. 2.

[This would make a very good arrangement; and I am not sure but it would pay every bee-keeper who winters in the cellar to provide such ventilating-rims, which he can put in between the hive and the bottom-board. The entrances should then all be closed, confining any bees that may die to the bottom.—ED.]

HIVES SET ON SLACKED LIME.

The best way to keep ants away from the hives is to set them on half a bushel of air-slacked lime spread around on the ground. That also keeps weeds down.

NICK SCHNETTLER.

Valders, Wis., Mar. 7.

OUR HOMES,

BY A. I. ROOT.

And whoso shall receive one such little child in my name receiveth me.—MATT. 18:5.

While, no doubt, we all inherit evil tendencies more or less, I feel sure that we start out on the voyage of life with a tendency toward truth and honesty. Children, as a rule, are innocent. Their natural bent is toward uprightness and unselfishness. While environment might not have all to do with it, it is certainly a very large factor in making a child turn out good or bad. Children should be isolated from evil associates. I would not shut them up and overdo the matter, but they should be fortified and drilled to look out for evil—to love righteousness and hate iniquity. Many a child has gone to the bad because of its bad surroundings; and all workers in mission and other reform work know that a child that is started wrongly may be rescued and turned back. It is also true that, after a child has been well started in wisdom's ways, some sudden change in its life, say the loss of father or mother, may so expose it to evil influences that the good start is lost, or drowned out, we might say. After I have told my little story that is to be the principal part of this Home talk I shall have something more to say on this subject.

Our train was passing through the pine woods of Northern Michigan. It slowed up at a little station called Merritt, between Manistee and Baldwin. I was reading something, and hardly noticed a freckled-faced boy who passed through the car with a tin pail in his hand. After he had gone by I roused up and turned, and began to look at him. I try to notice the small boys, wherever I am. He said something to the passengers in the back part of the car that I could not understand, so I rose up and called:

"What is it you have to sell, my young friend?"

He looked up shyly, and a faint smile came over his freckled face as he said slowly, with a low voice, "Wintergreen berries."

I repeated the words so loudly that every one in the car heard. I did it because I caught on to the fact at once that he had passed through the car without getting anybody to notice him or his berries, mainly because he was too bashful to make himself heard.*

"Why, bless your heart, child, what beautiful large berries these are! Haven't you sold any?"

He shook his head as he looked up in my face wistfully.

"How much for a cupful?"

"Five cents," he answered with that quiet low voice of his.

"Why, that is cheap. Here—I want two cupfuls. These are my favorite fruit."

The passengers began to wake up and smile, and gathered around us. Most of them had never seen wintergreen berries, and did not know they were good to eat. Dear readers, I suppose most of you know that I have served an apprenticeship in selling berries. One Saturday night several years ago our strawberry-pickers told me they had been all over town and sold every berry that could be sold at any price, and yet there were something like fifteen or twenty bushels left that would not keep until Monday morning. I laughingly told them I would have to give them a lesson in selling goods, and I sold the whole lot standing right in front of our store. Of course, there were a good many people passing by on their way home, and when it became dark I lit a lamp. I sold all at a fair price. After I got the town waked up, two or three people came with pans and pails after I had sold out.

Well, I felt sorry for the boy because he had had such poor luck, and in a few minutes I made him happy, and I think every passenger in the car was happy also, judging by their looks, with their beautiful and luscious berries. After they were gone, and somebody wanted more, this young friend of mine (oh! he *was* my friend, you may be sure) beckoned to another freckled-faced boy outdoors, and he came in with his pailful. He had been through another car, but with little success evidently. If the car had not started while we were busy with our traffic, I think the second pail would have been emptied also. As I helped the boys to get off the car I said jokingly, "Wouldn't you like to have me go with you and pick berries? And just think what a lot you could sell if you had *me* along!"

Their faces brightened up so much at the suggestion that I actually meditated getting off and going berrying until the next train; but I found I would have to wait five hours, and I could not well spare the time. Let us now go back a little.

When I told my little friend I would take two cupfuls I gave him a quarter, and he gave me back four nickels. I was so busy eating the berries that I did not think of it till he was pouring them into his little bags for somebody else. Then I said, "Why, look here, my son, you have cheated yourself. Now, suppose I had not been an honest man, but had kept still and kept that nickel that belongs to you."

He looked up with his soft blue eyes, and said, "Oh! I wouldn't mind. I could pick another cupful in just a few minutes."

The passengers began to laugh at this, and then a lady said, "Why, dear me! he served me in the same way. I gave him a dime and he gave me back two nickels, and the berries besides." Then a gentleman in the back of the car looked over his change and said the boy had given *him* a nickel too much. I can readily understand how this came about. The boy was discouraged when he went through the car, and nobody noticed him or his berries. When I took hold as I did and emptied his pail he was a little excited because he was afraid the car might start. And then, too, it was a little embarrassing having so many all around him all at once with his unexpected good fortune. I noticed his hands trembled in his efforts to open his paper bags, and so I opened them for him while he poured out the berries. Besides, he trusted to the honesty of the good men and women who were gathered about him; and he was a rather small boy for so much business all in a rush. Last of all, he had not been through this hard cold business world, and been taught to look out for No. 1, by its hard knocks.

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* It is a trade to sell berries—yes, even wintergreen berries. For that matter it is a trade to know how to get this busy world to notice what we have to sell, even if it is something that everybody would be glad to get if he knew of it. The little incident reminded me of something I read in one of our agricultural papers. I do not know that I have got it just right. It is something like this:

He who whispers down a well
About the things he has to sell
Will never make the shining dollars
Like him who climbs a tree, and hollers.

My good friends, there is a worldful of freckled-faced boys just like this one. They have not yet learned to be greedy, and to "want the whole earth," as the expression goes. Some of the small boys in our cities have been taught selfishness, even at an early age; but the boys in the country—that is, out in the woods—are, many of them, as yet as God made them. I am sure he told the truth when he said it would not matter if I had taken the two cupfuls for the nickel. The berries are very plentiful in many of those woods in Northern Michigan; and I kept thinking of those two boys all day, and regretting that I could not go with them to the woods to pick berries, and then stand between them and the busy world and help them *sell* the fruit. Then I wondered if there was any church or Sunday-school around that little settlement called Merritt. Are there some good people there trying to *keep* those boys' hearts pure and unselfish? When I read in the papers of the way in which our great men who are occupying important places are, one after another, being found guilty of accepting bribes, or planning to put money in their own pockets instead of saving that which belongs to the people (who voted to intrust our public funds to their care and honesty) then I wonder again if these boys that now seem so honest and unselfish are going to get into the whirlpool after all, where all, or at least many of them, seem to be giving life and health and strength toward catching at straws; for the wealth of this world is indeed straws compared to spiritual gains. Jesus asked, "What shall it profit a man if he shall gain the whole world and lose his own soul?" No, I am not calling *everybody* greedy and dishonest. I know there are good men and good women, scores of them. May God be praised there are so many! and yet it saddens me to think that these freckled-faced boys may in time be trained so far away from childhood and childish promptings that they may become only greedy tyrants. May God help us to look after these little ones, and protect them! May he give us more heart and zeal in keeping up Sunday-schools, prayer-meetings, and places of worship.

The next verse after the one I have chosen for my text says, "But whoso shall offend one of these little ones which believe in me, it were better for him that a millstone were hanged about his neck, and that he were drowned in the depth of the sea." Now, just think of it, friends. Arrayed against the Sunday-schools and churches are the saloons that are scattered through almost every little town in Northern Michigan. These saloon-keepers would get every boy away from the Sunday-schools if they could, for a Sunday-school is opposed to a saloon, and *vice versa*. They would teach this young boy whom I have held up before you to-day to drink and swear, and to use improper language. They would deliberately place vile pictures before those innocent, confiding blue eyes. They would fill his childish heart with poison—a poison that kills both body and soul.

At the close of the bee-keepers' convention at Central Lake I was asked to give a talk in one of the churches. When I said I should like particularly to speak to the men and boys, the ministers of the town with whom I had become acquainted assured me that I would get only women, or mostly women, to come out during an evening on week days; but I felt so anxious to have a little talk with the men and boys that I proposed inviting the business men. I did so, and quite a few came out. I had planned, also, to invite the boys; but when almost every boy I met had a cigar or cigarette in his mouth, courage failed. I said to the ministers, "Surely the voting men of this beautiful town would banish the saloons if they had a fair chance and a fair vote." The pastors sadly shook their heads. They said the men who ran the mills were pretty nearly all patrons of the saloons, and they would be pretty sure to outnumber the church and temperance people. The farmers, God bless them! and most of the business men of the town, were in favor of temperance. Those who worked in the sawmills and lumber-camps are as a rule a drinking set, and they rule the town in politics and morals. May be it is almost a hopeless task to try to banish these evils among men; but what about the boys who have not yet started on the downward track? May God help that little band of W. C. T. U. women at Central Lake, and in every other place of like surroundings, to "be not weary in well doing," holding fast to God's promise that "in due time we *shall* reap if we faint not."

LONG-RANGE WEATHER-FORECASTS.

Perhaps some of the friends may think I am having a good deal to say in regard to Hicks and his weather almanac; but I firmly believe it is the duty of every periodical that circulates among the farming community to keep protesting until people learn better than to waste their money on the "St. Louis astrologer" or any other fortune-teller. Just now there seems to be a concerted action on the part of the agricultural papers to make a general protest against this false science and false teaching. See the following, from that excellent home paper "our own" *Ohio Farmer:*

> Mr. Herrick says that Hicks' forecasts are "based on prevailing astromomical conditions," etc. But all who have any real knowledge of astronomy and meteorology know that the fixed stars have absolutely no discernible influence upon our world's weather conditions; that the planets of our own system have only an influence which, as compared to that of the sun, is infinitessimal and absolutely inappreciable, while that of the moon, which, from its vastly closer proximity to our earth, causes ocean tides and their variations of "spring" and "neap," depending upon "conjunction" or "opposition," really has so exceedingly little effect upon weather conditions that no long-time forecasts of any real value can be based upon the moon's phases. All our great astronomers and meteorologists know that the above general statement is true.
>
> These long-range forecasts are a "snare and a delusion," an unmitigated humbug, a hindrance and a damage to every farmer who gives them any credence or any attention! They have *no scientific basis.* Comparisons with the actual recorded facts prove that they are guesses which occasionally hit but usually miss. *Let them alone.* Study the short-time forecasts of our United States Weather Bureau. They cost us. the people, more than a million dollars each year. They rest on a solid basis of science and an accurate daily knowledge of the direction and velocity of storms or climatic currents, the reports being more frequent when violent conditions require. The forecasts are true 80 times out of each 100, the inaccuracies being due to unexpected changes in direction and velocity of currents between the widespread telegraphic reports. But *let the weather charlatans severely alone.*

NOTES OF TRAVEL
BY A. I. ROOT.

LETTUCE UNDER GLASS WARMED BY EXHAUST STEAM.

I met one of my "happy surprises" at Fremont, Mich., while making a call on our veteran bee-keeper G. E. Hilton. Friend H. did not accompany me to the convention, for the good reason that I found him and his home, including his family, up in the air. They were not up in a flying-machine or a balloon; but his house was raised up on blocks and machinery in order to move it over to the other side of the dooryard; and while the gang of men were at work on the aforesaid job a storm of rain and snow hindered them so it was convention time the very day the home was to be located, plumbed, and leveled. In fact, they were in such a predicament they could hardly open and shut the doors. Notwithstanding, I had an exceedingly pleasant visit with friend Hilton and his model little family. But the happy surprise I have mentioned in the opening was in the form of a new glass structure expressly for growing Grand Rapids lettuce, built just about a year ago. I did not get the dimensions, but it must have covered between one-fourth and half an acre of ground; and it was not only filled with as nice lettuce as I ever looked on. but the whole plant has been run so far with exhaust steam on the very plan I have urged so often on these pages. The steam comes from the waterworks and electric-light plant of the town of Fremont. One of the enterprising owners has worked a great part of his life at plumbing, especially for warming greenhouses; and by his skill and experience he has successfully overcome all obstacles in the way of using exhaust or waste steam. They pay the city $300 a year for taking the exhaust steam out of their way; and they do it in such a way that it not only takes no power from the engine in back pressure, but, on the contrary, by the use of some kind of pump they keep a partial vacuum in the heating-pipes so the steam rushes over there of its own accord; and the greenhouse really helps the engine instead of taking off any of its power by back pressure. I do not know the particulars, or whether the device is patented; and I am unable to say whether pumping out the drip water is all that is necessary to produce this vacuum or not; but at any rate the apparatus worked beautifully. They even go so far as to have a thermostat that automatically keeps the temperature at the right point in the greenhouse, without any manipulation on the part of the owners.

They are selling their lettuce in Cincinnati. Just think of sending several hundred miles, away up in Michigan, for the lettuce needed in comparatively mild Cincinnati. Just now they are putting in cucumbers where the lettuce is taken off, and I never saw a ranker, healthier growth of cucumber-vines, outdoors or anywhere else. Of course, they need a higher temperature for cucumbers. To make a rotation they also grow radishes. When I remarked that most of the radishes I had grown in the greenhouse ran up to tops which I was compelled to sell for greens, the proprietor laughed and asked me what time of year I tried to grow them. When I said December and January he told me to try it next time in March and April, with plenty of daylight, long days, and short nights. He said I could then grow radishes with good bottoms and small tops.

Like Eugene Davis, they have one or two houses with translucent glass—the wavy glass that subdues the fierce sunlight in the summer. He said he preferred the wavy glass were it not for the difficulty of laying it so as to make tight joints. This glass, on account of the uneven surface, can not be cut accurately like the clear window glass. There was not a green fly—at least I could not discover any—on the whole plantation. The crop was so remarkably even, and free from sports, that I was curious to know where they got the seed. He said it came from D. M. Ferry, of Detroit. He added that they had tried seed from a great variety of sources, but Ferry's had seemed to be the truest. They propose to grow either cucumbers, lettuce, or radishes every day in the year, thus having no idle or waste time with a plant that cost so much money. Their only fertilizer is stable manure. Their soil is a black loam that I believe they bring a mile or so from out of town. Every florist or lettuce-grower should hunt up the very best soil for his crop, and he can well afford to go a mile or more after it rather than use any thing inferior. Insect enemies are kept down by burning in little stoves, located at different points in the houses, a mixture of tobacco stems and tocacco dust. I do not know but tobacco is destined to fill an important place in commerce; but we want to be sure it is injurious insects that we use it on instead of killing off our boys with it, and it is the worst kind of killing, please bear in mind, friends, for it kills physically, mentally, and spiritually. God help us in protecting our boys.

THE CONVENTION AT CENTRAL LAKE.

During the two days and one evening, almost every thing pertaining to bee-keeping was discussed. I shall touch on only a few brief points brought out that have not already been gone over so much in our columns.

In answer to the question, "Why use a dummy in eight-frame hives when none is needed in a ten-frame hive?" the most of the bee-keepers said they did not use a dummy at all; but beginners, when they are learning to handle frames, find it convenient to have a dummy to remove in order that they may have less trouble in getting out the first comb, especially where using the Hoffman frame.

Nearly everybody at the convention used wired frames; and there was a general agreement that the wires should not be drawn too tightly. If they are drawn up taut the sheet of foundation will almost always bulge or buckle, because it extends downward a little when the bees work it out; therefore the wires should be just a little loose in order to have perfectly flat combs without any bulging.

There was much discussion in regard to the time for putting bees into the cellar in the fall and removing them in the spring; and it seems to me to be a good deal a matter of locality, season, and other circumstances. One bee-keeper mentioned a case where a part of his bees were left in their winter quarters until after the rest had been gathering early pollen and some honey for several days. Those that were taken out last got behind and never caught up. Mrs. Morrow and several others present winter outdoors in chaff hives. Friend Hilton also advocates and practices outdoor wintering in the Hilton chaff hive. It takes more honey, no doubt; but the bees are always ready to catch the early pollen, and are not likely to suffer, even if a cold snap comes afterward. Others who practice cellar or cave wintering claim they not only save their bees from loss, but save from 5 to 10 lbs. in stores. Walter Harmer, of Manistee, has wintered 60 or 70 colonies in a cellar during the past winter that were almost destitute of stores; and he has been feeding them all along liquid food with the well-known pepper-box feeder. This was considered a little remarkable, because there seems to have been an idea that we can not feed liquid food in the cellar. Mr. Harmer's method of making the syrup is to fill any dish with granulated sugar up to a certain point. Make a mark with a pencil or something else just where this point is; then pour in boiling water until the water rises to the same point. This gives the right consistency. I visited his cellar and looked over his bees, and was satisfied he made a success with it.

There was quite a discussion in regard to wax-extractors. In the *Bee-keepers' Review* for April an apparatus is figured and described which seemed to be about what most of them use. The principle is about the same as that of our German wax-press. The home-made machine costs less money. Mr. Harris, who used to be located in St. Louis, Mich., renders his wax with a pair of "squeezers." This is the same thing, on a larger scale, that my mother used to use for getting out lard and tallow on butchering day. It gets all the wax as well as any thing, probably; but where there is much to be rendered, most bee-keepers prefer the press.

Several recommended melting up the combs whenever they get to be thick and heavy, especially if they contain much drone comb. The wax that has accumulated during several years of use will furnish foundation for a brand-new set of nice combs, and enough to pay for your trouble besides. Soak your old combs for 24 hours in warm water. This softens the cocoons from the old brood-combs and soaks them so full of water that they do not take up and hold melted wax, thus assisting considerably in squeezing out the nice yellow wax.

One bee-keeper reported quite a lot of honey from radishes. These radishes were grown by the acre to supply a large seed-house with seed. The honey had an unmistakable flavor of radish.

The president, Mr. Kirkpatrick, produced and sold last year 5000 lbs. of honey which sold in gallon cans at $1.20 per gallon. His poor dark honey he sold to the baker to make honey-jumbles. His poor honey brought him only 6½ cts. per lb. He said he thought it better to sell at that price, and get it out of the way, than to take any chances in having it spoil his reputation for first-class table honey.

There was not much discussion on foul brood, from the encouraging fact that it is practically stamped out through all that northern region, many thanks to Foul-brood Inspector W. Z. Hutchinson and to Bro. Rankin, who commenced the work before him. From reports made, I am now satisfied that foul brood can be stamped out at comparatively little expense if you have a competent inspector. The disease is a disgrace and a shame to the whole United States; and every State should lend a hand in driving it off from the face of the earth.

Somebody asked through the question-box, "Is there danger from in-and-in breeding with the bees if the apiarist neglects to get new queens and new blood from somewhere else occasionally?" I took the ground that bees could not well suffer in this way so long as the queens and drones meet in the open air. Others argued to the contrary; and finally somebody called on a bee-keeper present, I think it was J. W. Isaman, but I may be mistaken. After some little urging, this man gave his experience. He kept bees for fourteen years without getting any new strain of blood or any queens from anybody. He just kept the same stock right along. As his locality is good he had fair success. But somebody suggested sending to the Root Co. for an Italian queen, and carefully note the yield from her bees compared with the others. He finally sent for an untested dollar queen; and after some trouble in introducing because of delay in getting the queen he got her to laying all right. The very first season, this queen gave him 300 lbs. of honey, while his general average was but little more than 100. This certainly looked as if it paid to introduce fresh blood from somewhere else. Mr. Isaman was honest enough, however, to admit that he watched that colony, and perhaps gave it more care than any of the others. The above incident rather turned the laugh on me. When I got up I said something as follows:

"Now, friends, I do not want you to rush to the conclusion that *all* the queens we sell for a dollar will give results like those just mentioned. I suppose that you are aware that I introduced, years ago, the custom of selling queens for an even dollar, without testing, and without any guarantee. There had been so much disappointment in sending for high-priced queens that I suggested every man should do his own testing. The breeder should breed from the very best strains he can procure, either in Italy or in America. Then he should sell his young queens as soon as they commence to lay, at the uniform price of one dollar, letting the producer do his own testing; and I still believe this is about as good a way as any to get the best strains of bees. Do your own testing and you will have no complaint to make. At first there was a big tirade against cheap queens as there is against cheap stock of any sort; but a few years began to demonstrate that the untested queens were about as good as any. For one thing, if the breeder is an honest man you are sure of getting a *young* queen; and a young queen is always worth more than an old one, other things being equal.

It was my privilege to stay over night at the home of Mrs. Morrow, a mile and a half out of the town of Central Lake. Mrs. M. has between fifty and sixty colonies of bees, but as her husband and not one of the family of children take to bees, she manages them entirely herself. She has secured good crops of honey, and, strange to tell, her honey never candies. It is stored in sap-pails with a cloth tied over the top; and on a frosty morning you can turn the pail of honey upside down and not spill a drop, it is so thick, and yet it is just as clear as glass. For quality it suited me so well I took a bottle of it home to show our Medina folks what good thick honey is like. The only explanation she could give for the fact that her honey does not candy, while the raspberry honey of that region is celebrated for candying solid as soon as cold weather comes is that her extracting is all done late in the fall. She just piles the hives up one story on top of another, so as to give the bees room. When extracting time comes, the combs are taken into a warm room, and kept there long enough to get well warmed through. The room is kept at a pretty high temperature where the extracting is done, because the honey is so thick it is a pretty hard matter to throw it out. Of course, there are other bee-keepers, many of them, working on this plan. The honey is better ripened, a good deal, than the average comb honey, especially comb honey that is taken from the hive before it is soiled by the bees tramping over it. And I for one do not want any more comb honey so long as I can get Mrs. Morrow's extracted. I have submitted my sample to a good many people since then, and they pretty much all agree with me. The honey is so thick it is difficult to get it out of the bottle without warming or letting it stand in a warm room. Of course, such thick honey ought to bring more money than the ordinary liquid honey on the market; but I for one would be willing to pay for it. Mrs. Morrow has now just about sold out. She has been getting 8 cts. per lb. at retail, but I think it certainly ought to be 10. Honey that is so well ripened that you can turn over a dishful at ordinary temperatures without spilling it ought to bring two or three cents a pound extra. There is, perhaps, a little objection to taking off the whole crop of the season at once. You will have your raspberry, clover, and perhaps honey from other sources, all run together; that is, it would be rather impracticable to keep it separate. But I should say, let it go all together so we have it thick enough to "cut with a knife," as the saying is. Of course, thin honey can be evaporated by artificial means, setting a pan of it in an oven for instance, not letting it get too warm. But I think the bees can do the ripening better and perhaps cheaper than we can.

GROWING WINTERGREENS AND WINTERGREEN BERRIES.

The incident mentioned in Our Homes has given me a new hobby. I brought home a lot of those wintergreen berries, and they are already planted in my greenhouse. Some I mashed to get out the seeds, and some I planted whole. I am going to try hard to make them grow; and if there is any bee-keeper in Northern Michigan or anywhere else who can send me some wintergreens with the roots nicely packed, I will gladly pay him for his time and trouble. I presume it is going to be a little difficult to grow wintergreens under cultivation; but I opine it is no more difficult than many of the plants we have already grown in the greenhouse that require shade, a particular soil, special modes of watering, etc. A wintergreen-plant in a pot, loaded with berries, would be as handsome in the way of ornament as almost any thing in the greenhouse. It is an evergreen; the blossoms are very pretty, and the berries hang on the plants almost the year round, if I am not mistaken. Some of the berries I got of that boy were very large; and if you will look at them closely you will find them very handsome, not unlike a navel orange, but, of course, of a deeper red.* Under cultivation I believe we may be able to grow them larger still; and, besides the beauty of the foliage, flowers, and fruit, they are delicious food. The same plant is also called partridge berry, because partridges largely subsist on them; and I admire the good sense and taste of the partridges. I ate one cupful, and enjoyed them very much before it occurred to me I had better take some of them home to plant.

Now, if anybody has ever succeeded in growing wintergreens under cultivation, that is the person I wish to get hold of. I have planted my berries in a mixture of jadoo and sand. Wintergreens usually grow in a sandy soil where it is rather damp, and the largest plants and berries are usually found where there is decayed wood or a large amount of humus in the soil. At the time the berries are usually gathered in the spring the young wintergreen sprouts are shooting forth. When small they have a beautiful crimson tint that makes them about as handsome as an achyranthus. And, by the way, whenever you want to go picnicking, always choose some spot where wintergreens are thick—that is, if there is any such near you. Why, it makes me young again to think of it.

Now, who will tell us something more about the wintergreen? When I was traveling in Cuba, California, and some other places, sometimes an inquisitive Yankee would want to know what my business was. My usual answer was that I was looking up *God's gifts;* and this wintergreen-plant is one of his gifts that just now makes me happy to talk about, think about, or read about. Who will get ahead of me in getting some plants to grow under cultivation?

WARMING POULTRY-HOUSES FOR GETTING EGGS IN WINTER.

Of course, this is not a poultry journal, and may be I shall put my foot in it if I undertake to teach poultry people; but as I am going to make only a suggestion I think our poultry people will excuse me. When I arose at friend Morrow's a little after daylight, as I usually do, there was nobody stirring, and there was no fire in any of the stoves. Mrs. Morrow laughingly told me I would have to go down to the barn to get warm until the fires were lighted. That was a novel idea to me, that a barn would be warmer than a house. This, of course, aroused my Yankee curiosity; but when her good husband came along with a milk-pail and asked me to follow him I soon solved the mystery. They not only grow beautiful *honey* on the Morrow farm, but they have the *milk* to go with it. One of the first things that struck my eye on coming on to the place was a handsome big barn with a basement laid up with stone in a substantial manner. Inside of this spacious basement I found thirty or forty head of cattle and horses; and the basement was so snug that the temperature of the whole large room was quite comfortable on that cold frosty morning. In fact, I saw beautiful potatoes in open bins that had been there all winter long—no freezing at all, so all they needed was protection from the light. With the right kind of stable, thick heavy walls, perhaps partly under ground at the back side, the animal heat generated by the live stock keeps out the cold. Then I suggested that the south side should be a little larger so as to accommodate a good flock of poultry, fencing them off with netting. Of course, it might make the stable a little colder to heat this addition; but as the fowls themselves furnish considerable warmth I do not think the difference in temperature would be appreciable; and where one keeps a lot of cattle and horses it seems to me it would not be an expensive way of keeping biddies comfortably warm. As it is, Mrs. Morrow has sold over $50 worth of eggs since January 1; and she has a 200-egg incubator in operation; and what a nice place it is to work in in winter time, especially when you have zero weather and storms outside! No wonder the cattle looked sleek, comfortable, and happy. I do not believe the Morrow children, with such a home and comfortable surroundings, will be in a hurrry to get away from the farm and off into the town.

SUNDAY DAILIES, MUSHROOM-GROWING, ETC.

The biggest lies are always found in the Sunday dailies. May be you think I am using rather strong language. I do not think I would ever read a Sunday daily at all were it not for the pages that are submitted to me to inquire whether statements are true, etc. The one before me now is taken from the St. Louis *Post-Dispatch* of April 16. One full page is devoted to the mushroom industry. The heading is as follows:

> $50 A DAY GROWING MUSHROOMS IN ST. LOUIS.
>
> The Remarkable Profits to be Made in this Curious New

---

* I have recently noticed in one of the dailies that a small boy in Northern Michigan, who has a widowed mother, sold over $50 worth of wintergreen berries during the past season. He and his brothers and sisters picked, then he took them to a nearby city and disposed of them.

Industry.—Hotels, Clubs, and Restaurants which Buy All They can Get at 50 Cents per Pound.—How any Person can Grow Mushrooms in his Cellar or Back Yard.—Profitable occupation for Ladies, Clerks, or Old Men.—A Steady Demand Far in Excess of the Supply.—Crops that Come up in the Night.

I will extract only two paragraphs from the article. They are fair samples of the whole:

> Victor Pinet, "the Rockefeller of the mushroom industry in St. Louis," cleared a small place in Uhrig's cave recently, and set out a mushroom-bed. Then he sat in his easy-chair, and in three months cut $3000 worth of mushrooms from the bed he had planted. Monsieur Pinet is an unskilled laborer. He might, if he had good luck, have earned $45 a month during the three months he spent cutting $50 worth a day of fungi from his mushroom-bed.
>
> One waiter studied chemistry, and, finding that the ammonia in manure was the means of growing mushrooms quickly, simply bought five cents' worth of ammonia, mixed it with water, and grew $5 worth of mushrooms over night.

Their authority for announcing to the city of St. Louis and the rest of the world in general that you can always get 50 cts. per lb. for all you can grow comes from a steward in one of the St. Louis hotels; but, if I mistake not, one of our agricultural papers has recently informed us that mushrooms are at the present time only a drug in the market in most of our large northern cities, and that growers find it a hard matter to get enough for them to pay cost.

Now, I do not like to find fault; but if you want reliable information do not expect to find it in a Sunday daily. The people who get up and sell Sunday papers have, as a natural consequence, less conscience than those who try to "remember the sabbath day to keep it holy."

Before closing I want to say something pleasant about mushroom-growing. While in our Medina greenhouse a few days ago I happened to look into the bin where the owners keep their compost (old rotted stable manure) for mixing with potting soil. It was full of mushrooms in all stages, from little bits of ones not larger than a pinhead up to those large enough to use; in fact, they had been using them on the table for some time. The spores that produced these mushrooms had formed a kind of network all through the compost. The strangest part of it is, they had never procured any mushroom spawn nor ever tried to grow mushrooms in their greenhouse at all. No doubt there is a good opening for the mushroom industry; but you will have to learn the trade, and you will probably also learn that the market may be at times overstocked the same as it is with every other commodity; and I think you will find that, instead of "sitting in an easy-chair" and raking in the dollars, you will have to get up and dust, about as much as if you were growing strawberries or any other crop.

DUFFY'S WHISKY — LOOK OUT FOR YOUR FRIENDS AND RELATIVES.

At Muncie, Indiana, there are four quite elderly people. The Duffy folks found out about it, and hired a photographer to go there and get their pictures in a group. He told them they were wanted for the accommodation of a number of their friends. Then the Duffy folks manufactured a letter (attaching the signatures) reading thus:

> We have used Duffy's pure malt whisky, and feel it has lengthened our lives It has imparted new strength and vigor into our time-worn bodies, and we can truthfully say that, by the use of it as a medicine, we have been able to live together as a family to a ripe old age. Our ages range from 83 to 96 years. By its use we hope to have our lives prolonged, and recommend this excellent whisky to all who wish a stimulant of sterling quality.
>
> MRS. MARY EILER,
> PETER MUTCH,
> MRS. CATHERINE MUTCH,
> Muncie, Ind., Jan. 20. MRS. MARGARET OVINGER.

Besides these pictures and the above letter they had a lot of advertising about how their whisky prolonged the lives of old people. I hardly need tell you that these old people had never used Duffy's whisky nor any other kind, and never heard of it. When the photographer gave them some bottles of it they supposed it was some kind of liniment (they were rheumatic), and never used it for any other purpose. As soon as these honest old people heard of it, of course they were highly indignant. In a similar instance, after the man they were using in their advertisement was dead his daughter had so many inquiries about the way in which this whisky had prolonged his life that she got the pastor of their church to help her answer the letters, telling the inquirers it was a fraud—that her father had never used Duffy's whisky at all. They got hold of his photo by some hook or crook, and wrote a letter, adding his signature after he was dead. As the government will do nothing, and as the lawyers say the whisky people can not be arrested for this business as long as they do not get money by the attached names, we are pretty nearly helpless by law. Now, if this is true shall we not all make a vigorous protest by declining to subscribe for papers that accept the advertising of Duffy's whisky? How many will help in exposing and putting down this outrageous work on honest and innocent people?

The particulars in regard to the above come from the *New Voice*.

THE MAN WHO ADVERTISES SO BIG ABOUT SELLING FARM PROPERTY.

The *Rural New-Yorker* has something further to say in this matter (see page 435, last issue). A large number of farmers have responded. Some of the letters are published. They wind up by saying:

> It would be interesting to know if he has made any sales of property. We should be glad to publish them. Some of the letters intimate that he makes no effort to sell, depending entirely upon the advance fee for his profits. This we do not state as a fact. We do not know that it is so. It would seem that his facilities are good for making sales. We don't see how he could fail to do so with any thing like an honest effort, because of his extensive advertising. But does he make sales? That is one of the questions people want to know.

$300,000,000 in Poultry

Do you know that the government census of 1900 gives the value of the poultry in that year at very nearly $300,000,000?

POULTRY SUCCESS, the Twentieth-Century Poultry Magazine, is absolutely indispensable to every one interested in chickens, whether they be beginners, experienced poultry-raisers, or keep only a few hens. It is without question the foremost poultry monthly in this country, and readers of its articles on pure-bred chicks and their better care and keeping have come to realize that it is plain truth that there's "money in a hen." POULTRY SUCCESS has from 36 to 112 pages every issue; is beautifully illustrated and printed; has best writers; 16 years old; shows how to succeed with poultry.

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Inland Poultry Journal,
40 Cord Building,
Indianapolis, Ind.

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of Prize-Winning Poultry

for 1905. This book is printed in different colors. Contains a Fine Chromo of lifelike fowls suitable for framing. It illustrates and describes 60 varieties of poultry, ducks, geese, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; Best Lice Destroyer how to make hens lay; poultry supplies and such information as is of much use to all who keep chickens. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

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I have also eggs from pure-bred Light Brahmas, Barred Rocks, White and Silver Wyandottes as above.

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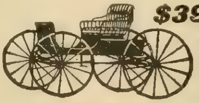

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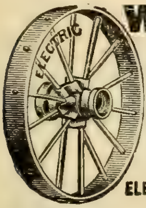

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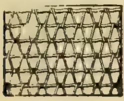

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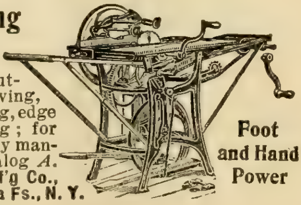

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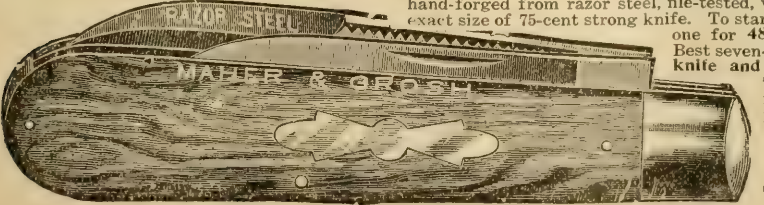

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Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines. and you must SAY you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

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O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 10 or 25 Danz. supers (new) for uncapping-can, comb-bucket, or wax-extractor.
THOS. S. WORK, Fort Morgan, Colo.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
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WANTED.—For April or May delivery from near-by points, bees on Langstroth or Danzenbaker frames. Write, stating full particulars.
WM. A. SELSER, 10 Vine St., Philadelphia, Pa.

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WANTED.—An experienced man to take charge of an apiary at once. J. W. CARTER, Smith, Nevada.

WANTED.—To exchange S. C. White Leghorn eggs for honey or offers. A. J. MORSE, Plum, Pa.

WANTED.—Youth 16 to 21 to learn bee-keeping and wood-working trade. No drinker or smoker need apply. J. M. MORGAN, Marcellus, N. Y.

WANTED.—Several young men in all parts of the country, including far West, to assist me in queen-rearing, and later to take full charge of branch in a territory that will be tasteful to them; first year may be spent at home, under direction from undersigned; must own or control at least 20 colonies of healty bees, and possess some knowledge of Swarthmore methods. For a good man with brains and a willing hand here is something both pleasant and profitable, which can be done at home along with any other work. Address, without delay, E. L. PRATT, Swarthmore, Pa.

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WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

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FOR SALE.—Leather-colored Italian queens, 50 cts. each. H. A. ROSS, Evansville, Ind.

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FOR SALE.—Nuclei and queens, good stock, special prices. JUDSON HEARD, Macon, Ga.

FOR SALE.—Thoroughbred S. C. W. Leghorn eggs; 15, $1.00; 30, $1.50; 60, $2.50; 90, $3.25; 210, $6.50.
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FOR SALE.—Two Root's foundation-mills and outfits —one 4¼-inch and the other 10-inch; nearly new.
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WM. CLIQUE, Hockinson, Wash.

FOR SALE.—About 125 swarms of bees, mostly Italian, in good 8 and 10 frame hives. Reference, N. E. France. For particulars write G. C. PIERCE, Kilbourn, Wis.

FOR SALE.—Four puppies bred from my reliable coon and mink dogs, still hunters; price $10 each. All kinds of bee-supplies. Root's goods at Root's prices.
HENRY ASAM, Carleton, Mich.

FOR SALE.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
THE HYDE BEE CO., Floresville, Texas.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. HILDRETH & SEGELKEN,
82-84 Murray St., New York City.

FOR SALE.—A few more slightly damaged (by water) hives, eight and ten frame, in flat; Lewis Company make; low price; satisfaction guaranteed; a bargain. Write us. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Black Orpingtons, Burton strain; importer of winners; grand in size, color, and shape. At Auburn show, 3 firsts, 1 second, 2 thirds, and 5 specials. Also first Buff hen and two specials.
W. H. GIFFORD, 151 Franklin St., Auburn, N. Y.

FOR SALE.—120 colonies of bees, 8½ acres of land, honey-house, and accessories; unlimited basswood and white-clover range—latter grown for seed extensively; no disease; good reason for selling. Write
ARNT ARNESON, R. F. D. 2, Cameron, Wis.

FOR SALE.—Two and one-half acres of land, nicely covered with mesquite trees; good five-room house; 3000 yards steel tank full of water from the roof; located 400 yards from S. A. & A. P. depot, 50 miles south of San Antonio; house insured for $500; just the place for a bee-keeper or queen-breeder. To be sold at a bargain. Write or call quick, as this will be sold cheap.
UDO TOEPPERWEIN,
1322 S. Flores St., San Antonio, Texas.

$52.50

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Our Rubber Tired Split Hickory Hummer

2-year guarantee. Sold on 30 Days Trial. Guaranteed solid rubber tires cut out jar, jolts and rattling. Is a Special Low Price. 192-page Free Catalogue tells all. Buggies $35 and up, all Split Hickory. Write for it.

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We want good live representatives to take orders for "Peuro or Pearl" medallions; entirely new; sell at sight; big money; exclusive territory given; agents' supplies; novelties up to date. Write at once.

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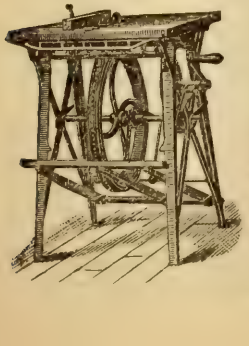
Pittsburg, Pa.**

MY GOLDEN BREEDERS gave me over 300 lbs. of honey each, last year; two years ago over 400 each. Their untested daughters are 75c each, or $8.00 per dozen. Tested, double the above prices. Breeding queens, $5.00 and $10.00 each.
GEO. W. COOK, Spring Hill, Kan.



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Hand and Foot Power
Machinery.**

This cut represents our combined circular saw which is made for bee-keeper's use in the construction of their hives sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

**W. F. & Jno. Barnes Co.,
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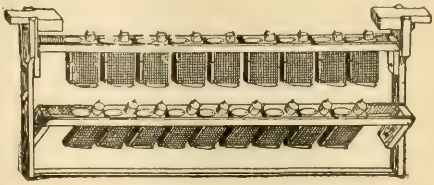
Rockford. : Illinois.**

THE ROOT QUEEN-REARING OUTFIT.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success. Outfit comprises three cell-bars with fifty waxed wooden cells, 1 frame cages (20); one cell-forming stick; one set grafting-tools, and a book on queen-rearing, $4.50.

Tools for Queen-breeders.

Wood cell-cup, with point for attaching to bar, 50c per 100: $4.00 per 1000.

Same, waxed ready for use, 75c per 100; $6 00 per 1000.

Titoff wire nursery-cages, 15c each; $1.35 for 10; $12.50 per 100.

Frame for holding 20 cages, including cages, $3.00.

Cell-stick each 10c; $1.00 per dozen.

Transferring-needle, double-ended and nickel-plated, 15 cents.

Jelly-spoon, nickel-plated, 15 cents.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each.

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ROOT'S BEE-KEEPERS' SUPPLIES

Quality—They are well made from good material. You are never disappointed and disgusted by receiving goods inaccurately cut, and roughly made, from inferior stock.

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Promptness—With our immense manufacturing facilities, the adoption of standard goods, and the establishment of agencies and branch houses throughout the various parts of the country, we can get goods to you with wonderful promptness.

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Only 3 Cents per Packet **PARK'S SEEDS** **Unsurpassed in Quality**

Have Stood the Test for 35 Years—Over 500,000 Satisfied Patrons Buy Them Yearly.

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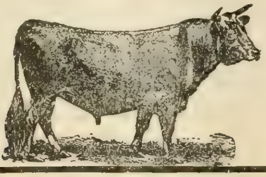
FOR 2 STAMPS I'll include packet of New Nicotiana Sanderæ, Stokesia, Giant Pansy, Double Petunia, Cineraria, Cyclamen or Chinese Primrose or all (8 pkts, with books, culture and Park's Floral Magazine, a charming illustrated monthly, 1 year) for 20 cts.



Many Claim Jerseys Superior

to every other milking and butter-making breed. Why? It will be thoroughly argued and questions answered in Blooded Stock for April. Mr. S. E. Nivin, Landenburg, Pa., and C. I. Hood, Lowell, Mass., are of international reputation and head the list of contributors.

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will devote nearly every column in April to this fascinating subject. It will teach its readers how to handle Jerseys to get highest percentages of cream and milk. You must subscribe! 25c a year.

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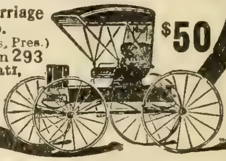

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8 CENTS PER DOUBLE ROLL OF 16 YARDS

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We will furnish enough of this beautiful paper to decorate a room 12x15 feet including wall, ceiling and border for **ONLY..... $1.21**

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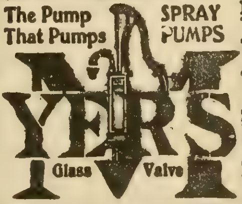

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HAY TOOLS of all kinds. Write for Circulars and Prices.

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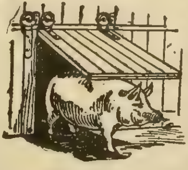

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

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Stamp your name and address on your letters. You will save yourself, as well as others, lots of trouble. A two-line stamp costs but **25c.** Many styles and prices given in our rubber-stamp catalog. Send for it to day. ¶ A stamp is neater than a label on sections, etc.

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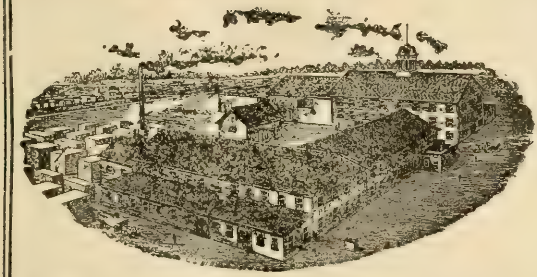

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Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, -:- Augusta, Wis.

1884 1905

New 64-page catalog for the New Year now ready

For You.

Twenty successful years manufacturing Bee-supplies and raising Italian Bees and Queens.

J. M. Jenkins,
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I. J. STRINGHAM,
NEW YORK

Furnishes everything in the line of BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case),	$8 50
In Chaff hives	9 50
Bees in any style of hive desired.	
Italian queens, tested,	$1 25
Italian queens, untested,	1 00
The best veils	40

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

Carniolan-Italian Cross, also Pure Carniolans.

These bees came through the past severe winter in good honey-gathering condition, and I am now, March 27, extracting 25 to 30 pounds of new honey from each full colony to give more room. Italian colonies are not yet strong enough to more than get a living, and such is the case every season with me. Draw your own conclusions. Queens as good as the best, $1.00 each; $9.00 per dozen. Money-order office. San Angelo, Tex.; post-office, Vigo, Tex.

J. E. Chambers.

PROVIDENCE QUEENS PROVE THEIR QUALITIES

To be unsurpassed. .˙ .˙
Reared by an exclusive method.
.˙ .˙ Circular on request.

LAWRENCE C. MILLER,
P. O. Box 1113G, Providence, R. I.

With tears of sweetest joy,
That nothing can alloy,
I arise to say that
(Excuse this shabby hat)

DOOLITTLE

Has worked so very hard
That he has got a "pard"
To help him with his bees,
And if you wish to please—

Yourself and us, send for a circular giving particulars regarding our fine Italian

QUEENS

Prices for queens this season will be as follows:

	1	3
Untested	$1.00	$2 25
Tested	1.25	3.00
Select tested..	1.50	4.00
Same, 1904 raising	2.50	
Select breeding......	5.00	
Extra select breed..	10.00	

Prices quoted by the dozen or hundred.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer, Ventura, Calif.

Queens

California

THE CROWN Bone Cutter for cutting *green bones*. For the poultryman. Best in the world. *Lowest in price*. Send for circular and testimonials. **Wilson Bros., EASTON, PA.**

A FEW

Unsolicited Testimonials Showing Kind of Stock Sent Out by Quirin-the-Queen-breeder.

Our folks say that your queens are extra fine.
The A. I. Root Co., Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was from one I purchased last year that gave me over 600 pounds of honey.
J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country.
E. L. Messenger,
53 Townsend Ave., New Haven, Conn.

The nuclei you sent J. A. Adams did just splendid. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley,
Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.
S. A. Peck, Box 124, Northumberland, Pa.

Prices before July 1	1	6	12
Select queens........................	$1 00	$5 00	$9 00
Tested queens........................	1 50	8 00	15 00
Select tested queens...............	2 00	10 00	18 00
Breeders................................	4 00	.....	.....
Straight five-band breeders.......	6 00	.....	.....
Two-comb nuclei, no queen........	2 50	14 00	25 00
Full colonies on eight frames......	6 00	30 00	.....
4 frames brood, 4 frs. foundation..	5 00	25 00	.....

If a queen is wanted with nuclei or colonies add the price of whatever grade of stock you want. Quirin's Northern-bred Italians are hardy, and give you results. Safe delivery guaranteed to all parts of the U. S., Canada, and Cuba; foreign countries, 25 cts. each extra. .˙ .˙ .˙ .˙ .˙

Queens Now Ready to Mail

Special prices in lots of 50 or more. Our business was established 1888. Send for circular, and address all orders to .˙ .˙ .˙ .˙ .˙

Quirin-the-Queen-Breeder

BELLEVUE, OHIO

York Honey & Bee-supply Co.

Not Incorporated. Successors to The York Honey Co.

141 and 143 Ontario Street, Chicago, Illinois

Five Short City Blocks North of the C. & N. W. R. R. Passenger Station

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LEWIS GOODS IN CHICAGO

BEST AND MOST DIRECT SHIPPING-POINT IN THE WORLD

H. M. Arnd, Manager.

We have on hand a large stock of

Lewis' Popular Bee-supplies!

Consisting of Hives, Sections, Shipping-cases —everything used by the practical up-to-date bee-keeper. ❧ Catalog and prices on honey on application. ❧ If you want good goods at factory prices, and prompt shipment, send your orders, or call on us. ❧ BEESWAX WANTED—28 cts. cash, or 30 cts. when taking bee-supplies in exchange—delivered here.

BINGHAM Original Direct Draft CLEAN Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder

Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. Langstroth.

ONLY BINGHAM SMOKERS Have These Latest Improvements.

Notice! ❧ ❧ ❧

To any one who will write to us, mentioning *Gleanings in Bee Culture*, we will send free of charge our booklet on "The Anatomy of the Automobile." This is the most valuable book published on the subject of automobiles. It tells you all you want to know about automobiles and airships. Write to-day. Also send 10 cts. in stamps for our 1905 catalog. Largest catalog of automobile supplies issued.

A. L. Dyke Auto-Supply Campany
Walton & Olive Sts., St. Louis, Mo.

SAVE BIG MONEY

On Buggy Supplies

Tops, storm fronts, wheels, springs, axles. Everything for a buggy or wagon made to order—guaranteed. Sold direct from factory at factory prices. You get the middlemen's profits. Catalogs free.

Cleveland Top Co., Dept. A-63
THE UNITED FACTORIES CO., Cleveland, Ohio

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

## EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.* :: :: :: :: ::

The new edition of "A B C of Bee Culture" is now here, and is ready for immediate distribution. :: :: ::

I occupy 4892 square feet of floor space, which is constantly occupied with a stock of goods. Since January 1st the Root Company have sent me three full carloads of supplies and twenty-four local shipments with which to complete rush orders. These nice clean goods are stacked to the ceiling, and are ready for immediate distribution. Keep right on sending in your orders as I am prepared to handle still more business with my usual promptness. Other carloads are coming.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., INDIANAPOLIS, IND.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

HIGH PRESSURE GARDENING BY A. I. ROOT

SOMETHING ABOUT POTATOES.

While in the Grand Traverse region I found potatoes were bringing only 8 or 10 cts. per bushel; and I could not help feeling a little bit troubled about my own advice last fall. My young neighbor, Orville, was then drawing those potatoes that he dug on top of that big hill, and selling them at 28 cts I told him he had better keep them till spring, or at least I advised him to do so. A lot of people around Traverse City sold their potatoes last spring for $1.00 a bushel, when they were only 25 cts. the fall before. Orville urged that they *sometimes* were lower in the spring than in the fall; but I reminded him they had been away up every spring for the last four or five years. Well, he sold all but about 70 bushels which he put in the cellar, and now they are worth 10 cts. instead of 28, or at least that was the price the first week in April.

There is a lot of uncertainty about these things. Two or three years ago I stayed over night with a bee-keeper near Traverse City who had about 3000 bushels of potatoes. If they were sold at a fair or usual price it would pay off the mortgage on his farm. He kept them until they began sprouting in the cellar, so that something had to be done with them. As the price kept going down he finally hauled them to town, and sold them at about 20 cts. Just as soon as they were off his hands the price began to creep up, and in ten days more he could have gotten between 40 and 50 cts. This advance in price would have cleared the mortgage and put a little money in the bank for a rainy day. He did not knew what was coming, and nobody knew. In view of all these things, I believe our best farmers have decided, as a rule, to sell as soon as the crop is harvested, whenever it brings a fair or reasonable price. If you have a good cellar for keeping potatoes, of course it is a very good thing to keep over a certain amount.

Now, here is another thing that is a fearful injustice to the farming people. While one could not get more than 10 cts. for the very finest fancy potatoes in Traverse City, the grocers were retailing them at 40. If they bought at all they paid but 10 cts.; but when they sold it was 40 cts. I said right off, "Why, bless your hearts, friends, why don't you peddle your potatoes through the city, say at 30 or 35 cts., or enough lower than the markets to make it an object to buy?" They replied that that was exactly what they had been doing to even up things when such a margin existed; but just recently an ordinance had been passed forbidding the farmers peddling out the stuff they grow.

Now, friends, we are running against the same problem that meets us when some small bee-keeper peddles his honey around town for less than it is worth. You see there are two sides to this question; but I for one am heartily in favor of letting the bee-keeper, the potato-grower, or anybody else who grows stuff on the farm, have the privilege of going around to houses and cutting off the middlemen whenever the middlemen want too big a slice.

A good friend who has been in the grocery business suggests right here, "But, Mr. Root, the grocer has to deliver his potatoes nowadays, and almost every thing else. People order by telephone; and don't you think it is worth a nickel to carry a peck of potatoes half a mile or more to anybody who happens to want them?" * Yes, that is true; and it is worse with potatoes than with honey. But here, again, is an excellent argument in favor of letting the farmer take a load of potatoes and carry them around to the houses. He can deliver cheaper than the grocer. But then there is another thing—farmers do not come around regularly. They may not come at all. You are out of potatoes, and must have them. But after summing it all up, I am sure it is *not* right for a grocer to pay 10 cts. for potatoes and sell at 40. Somebody puts in another plea for the grocer. He bought his potatoes last fall, and paid 25 or 30 cts. a bushel for them. Can you expect him to carry them around to his customers, and sell them for less than cost? And can you also expect him to buy more potatoes, even at 10 cts., when he is not sure he can dispose of all he has on hand that cost him perhaps 28 or 30 cts.? May God help us in all these perplexing problems to be fair and brotherly, for the good Book says we are to love our neighbor and to consider his interests in every transaction, exactly as we love ourselves and consider our own interests. Now, while we are talking about potatoes I wish to copy something startling from the *Rural New-Yorker*. If I had come across it in almost any other journal I would have thought there might be some mistake in the figures:

> THE HIGH PRICED POTATO.
>
> The National Department of Agriculture has arranged with the Rev. J. R. Lawrence, of Middleboro, Mass., to use his farm for potato-trial grounds this year, Mr. L.'s work last year with 500 varieties having been very satisfactory. This season he will have about 800 varieties of potatoes, which will be the largest collection of varieties in a single field in the world. One variety, the El Dorado, is the most valuable potato grown, being worth $2250 a pound. To secure the planting of this potato, Mr. Lawrence had to sign a guarantee not to allow a slip or an eye of the spud to leave his premises.

I once paid $10, as some of you may remember, for a single potato. Mrs. Root was quite vehement then about it, and she declared there was no justice or sense in calling *any* potato worth $10; but after I explained the matter at great length, she partly came over to my side; but I should almost fear to tell her there is a potato now that they call worth over $2000 per pound. What puzzles me is, why they did not give this valuable potato to some greenhouse man or send it to Florida and get some expert to go to work, before a single day passed, in duplicating tubers that are worth nearly ten times their weight in gold. And this reminds me that I have before heard of Rev. J. R. Lawrence, of Middleboro, Mass., and what he is doing in raising potatoes. If I can get an invitation from him I may visit his place this summer and write it up for the readers of GLEANINGS.

---

* I just heard of a woman who entered a meat-store and ordered half a pound of steak, and she said it would have to be delivered immediately, after which order she sailed out of the store and "sailed" down the walk toward her home, while the boy followed right behind her with the eight ounces of meat. And this is what some call "style." Yes, and it *is* style, and it is off the same piece as Mrs. Chadwick's style. Her name may not be familiar to the whole United States just as it is here in Northern Ohio. So long as people insist on making the butcher and grocer deliver at once an article weighing only half a pound, they must expect to pay the grocer, the baker, etc.

I have just been informed that the bottom has fallen out of the potato market in Cleveland also, and that the farmers of Portage County are trying to dispose of their crop in that city at 15 cts. a bushel.

Convention Notices.

The spring meeting of the Middlesex Bee-keepers Association will be held in the City Hall, London, Ont. on Saturday, May 6, 1905. E. T. BAINARD, Sec.
Lambeth, Ont., March 28.

THE NEXT NATIONAL CONVENTION TO BE HELD AT SAN ANTONIO, TEXAS.

For years Texas has been asking that the National Bee-keepers' Association hold its convention within her borders, but there has always seemed to be some reason why the meeting should be elsewhere. There is now no reason why it should not be held in Texas this year, if it is ever to be held there. Texas is the largest State in the Union, and stands at least second, if not first, in honey-production, while she has a good list of members in the National Association. Considering all of these facts, the Executive Committee has decided upon San Antonio as the place for holding the next convention. The exact date has not yet been decided upon, but it will probably be the latter part of October, after the busy season is over with the bees, when the weather is comfortable, even in the South, and when cheap excursion rates can be secured.

W. Z. HUTCHINSON, SEC'Y.

SPECIAL NOTICE
Special Notices
By Our Business Manager

The prize-photo contest, announced March 1, closes May 1st for all American competitors. The winners of these prizes will be announced in our next issue. We shall also in an early issue announce another photo contest for American readers, so our readers are urged not to lose any opportunity for securing a good photograph of any phase of bee-keeping.

THE FOREIGN PRIZE-PHOTO CONTEST.

This contest does not close until July 1. All foreign photos should be mailed to reach us by that date. The following are the prizes offered:

1st prize, one red-clover breeding queen; value $5 00.
2d prize, one select tested red-clover queen; value $3.
3d prize, one leather-bound A B C of Bee Culture; value $2.00.

Additional prizes offered by E. Bondonneau, Paris:

4th prize, one A B C of Bee Culture in French.
5th prize, goods selected from Paris stock to amount of $2.00.

BIGELOW EDUCATIONAL HIVES.

We have arranged to supply the trade with these hives on short notice at the following prices:

Bigelow educational hive complete, as shown page 478, in pine, nailed and varnished	$20.00
Same, in oak	25.00
Either of the above furnished, with glass only omitted, at a reduction of	1.50
The feeding-board and one and two frame hives may be omitted if desired, and price reduced by	5.00
Flying-cage in pine, no wire or glass	3.00
Same, in oak	4.00
Mahogany feeder, with lens, in pine	4.00
Same, in oak	5.00

Samples of these hives may be seen in our New York and Chicago offices, at 44 Vesey St. and 144 Erie St., respectively. Fuller particulars on application.

Special Notices by A. I. Root.

CRIMSON-CLOVER SEED—ADVANCE IN PRICE.

Instead of the prices given in our catalog, on and after this date crimson clover will be: Two-bushel sack, $11.50; bushel, $6.00; ½ bushel, $3.10; peck, $1.60; pound, 15 cts. If wanted by mail, add 10 cts. per pound for postage and packing. Remember that crimson clover is not sown in this locality until about July. With good soil and favorable conditions it is all right in August and even September; but the early sowing seems much the safest. Sow 8 to 15 pounds per acre.

HULLED SWEET CLOVER.

We have in time past found a difficulty in getting a nice article of hulled sweet clover, or Bokhara, as it is often called. Just now we have a handsome lot of fresh seed. But the price will have to be, 100 lbs., $16.00; 10 or more pounds, at 18 cts; 1 lb., 20 cts.; by mail, 30 cts. This is considerably higher than that with the hulls on; but it is much cleaner seed, and there are ever so many more good and perfect seeds in a pound. It is hard to determine which is the cheaper; but if you want the best I think you had better have hulled seed, especially if you want it by mail, as you thus save paying postage on worthless hulls. This is true to some extent by express or freight. The above prices take the place of all other quotations from this date on.

Sweet clover may be sown now or almost any time before winter, providing it gets root enough so the frost does not pull it out, and this latter very seldom happens with sweet clover. A new leaflet on sweet clover will be out soon.

Our catalog of seeds of honey-plants is not sent out at the present time unless called for; but it will be mailed at any time to any address on application by postal card or otherwise.

RADIUM AND RADIUM "MEDICINE."

Look out for the quack advertisers who claim they have radium in their bottles and stuff. The papers are full of radium advertisements. Please bear in mind that it is not yet settled that genuine radium possesses any great curative properties; and in the next place there is no probability that the radium medicines contain any radium at all. A careful reading of their printed letters (not genuine letters, mind you) indicates very clearly the humbug "ear-marks." Better trust to the wisdom of your family physician. Our genuine medical schools are carefully testing and making use of every thing the world can furnish to alleviate human suffering. Do not be humbugged by the quacks who claim that they belong to or are at the head of this or that medical school or college.

A SHORT CUT IN BEE CULTURE.

Just as we go to press a subscriber sends us the following advertisement:

> Wonderful discovery (copyright). Don't pay $5 to $10 for a stand of bees when you can learn the art and secret of fitting up empty hives and place same in your own dooryard so as to attract bees for miles, and thus catch all the swarms you want at home, year after year, for nothing. Easily done. Booklet mailed for $1.00.

We omit the address, for obvious reasons. We have sent a dollar, and a description of the booklet will be given to our readers in our next issue.

Carniolans a Specialty!!

ALSO breeders of Golden and Leather Italians. One untested queen, $1.00; six for $5.00; twelve for $9.00. Tested, $1.50. Best breeder, $3.00. Best imported, $5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Desciiptive price list free.

Carniolans.—We have bred this race of bees for twenty years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co. : Lake George, N. Y.

BEES A Big Stock Ready to Go Now **QUEENS**

WE WISH to say that we are now loaded with a big stock of FINE BEES and QUEENS ready to mail now; no delay—send for what you need at once. ❦ We breed the three and five banded Italians, Cyprians, Carniolans, Holy Lands, and Albinos in their purity, in separate yards five to thirty miles apart. ❦ Tested queens, $1.25 each; breeders, $3.00 to $5.00 each; untested, from either race, 75c—six for $4.00, or $7.50 per dozen. ❦ Full colonies, one, two, and three frame nuclei, cheaper than you ever bought good stocks for before ❦ No better to be had. ❦ Write for price list FREE. ❦ Safe arrival and perfect satisfaction guaranteed, or your money returned. Prices of queens, to dealers or in large lots, on application. ❦ We can furnish you bee-hives of yellow pine at about half the cost of white-pine goods. Get our prices before you buy.

THE BEE AND HONEY CO. W. Atchley, Manager. **BEEVILLE, BEE CO., TEXAS**

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville Texas.

GEORGIA QUEENS.

Of the highest standard bred from our superior Golden and Leather Italian stock. Gray Carniolan queens mated to Italian drones. Our colonies with these queens reared last season have from three to four frames of brood now. All queens are large and fine

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co. Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

Red-clover : and : Italian : Queens

Untested, 75c; $8.00 per dozen. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c —after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

GOOD : QUEENS

Now ready, at $1.00 each; tested, $1.50; golden stock.

J. B. Case, Port Orange, Fla.

The CHOICEST OF TESTED QUEENS

BY RETURN MAIL

From our reliable strain of three-band Italians, which all bee-keepers know are the bees for honey. Price $1.00 each. We guarantee satisfaction and safe arrival on all queens. Send for circular.

J. W. K. SHAW & COMPANY

Loreauville, Iberia Parish, Louisiana.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
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Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

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Volume XXXIII MAY 15, 1905 Number 10

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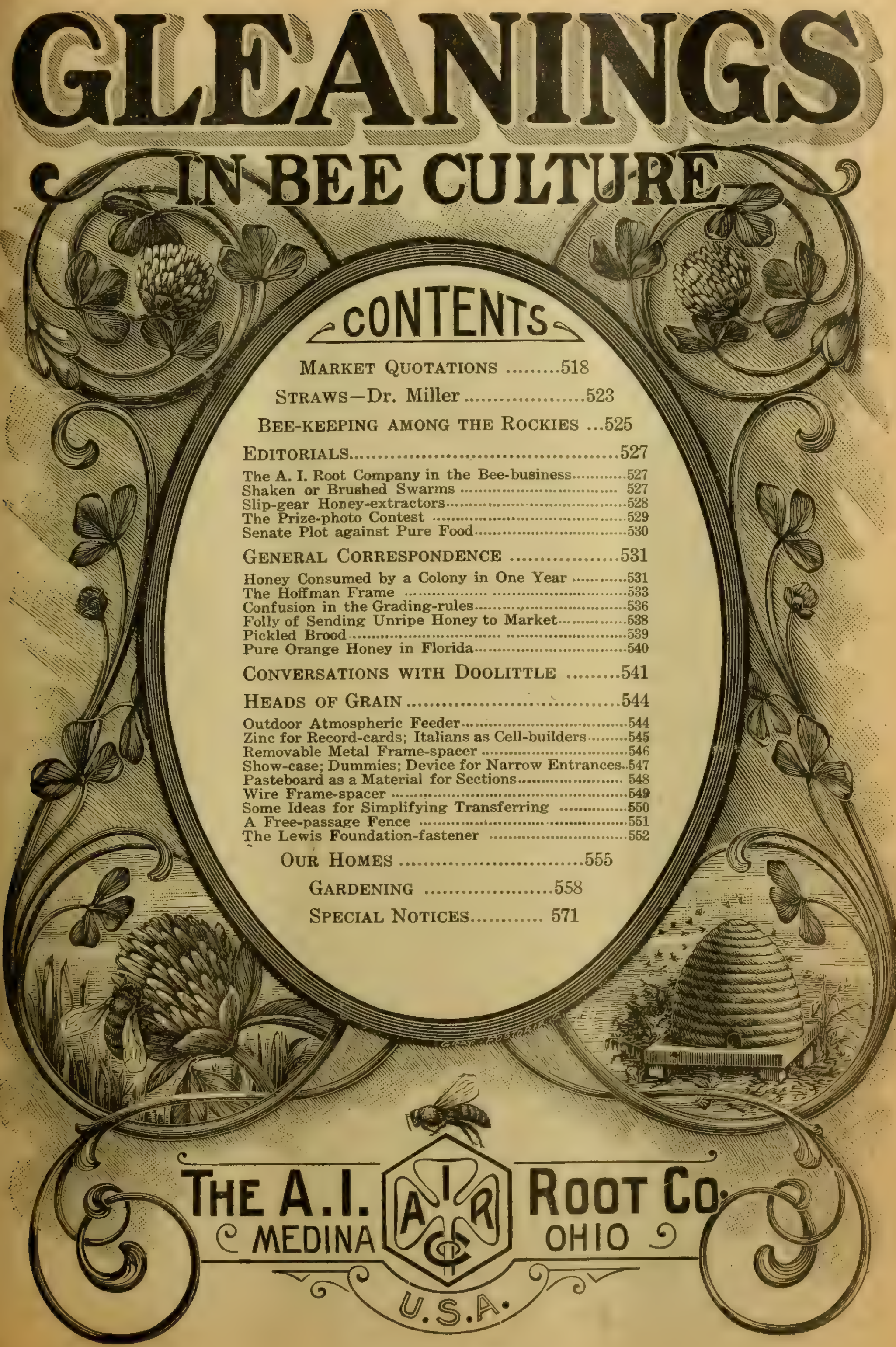

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We have a complete stock of
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and now is a good time to place your order. ❦ Our catalog for the asking. ❦ Beeswax wanted. ❦ Remember the Danzenbaker hive, the comb-honey hive.

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BELL BRANCH, MICH.

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Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Boston.—There is no change to note in condition of honey market from that of our letter of April 24, which was as follows: Fancy white, 16; A No. 1, 15; No. 1, 14. Extracted, 6@8, according to quality.

Blake, Scott & Lee,
May 9. 31-33 Commercial St., Boston, Mass.

Toronto.—Practically nothing to report in the honey market. Sales slow now. Prices unchanged.

May 10. E. Grainger & Co., Toronto, Ont.

Toledo.—The market on comb honey is very quiet, being pretty well cleaned up, very little demand at present. Prices the same as last quotations, as follows: Fancy white comb, 13½, with no demand for other grades. Extracted white clover in barrels, 6½@7—in cans, 7½@8; amber, 5@5½. Beeswax remains firm at 28@30.

Griggs Brothers,
May 8. 521 Monroe St., Toledo, Ohio.

Cincinnati.—The large stock of comb honey yet offered with hardly any demand causes lower prices. I quote fancy water white at 12; other grades lower in proportion. Extracted is in usual demand for this season of the year. We quote white clover, 7@8; amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28.

C. H. W. Weber,
May 8. 2146-8 Central Ave., Cincinnati, O.

Cincinnati.—The demand for honey has increased quite a bit since our last quotation, which is due, probably, to the concessions made in prices to effect sales, as well as the awakening of the spring trade. We quote amber extracted, in barrels at 4½@6½, according to quality; white clover and fancy extracted, 6@7½. Comb honey has seen its season. Beeswax is wanted at 29c, cash.

The Fred W. Muth Co.,
May 8. 51 Walnut St., Cincinnati, O.

Kansas City.—The honey market shows a little stronger feeling. We quote fancy white, $2.50; No. 1, $2.25; amber and off grades, 25 to 50c a case less. Extracted honey, 5@6c per lb. Beeswax, 28.

C. C. Clemons & Co.,
May 8. Kansas City, Mo.

St. Louis.—Our honey market has not undergone any change since our last, and the quotations given below are more or less nominal. We quote as follows: Fancy white comb, 13½@14; A No. 1, 11@12; No. 1, 9@11. Choice extracted white clover or Spanish needle in 5-gallon cans, 6½@7; dark and Southern in 5-gallon cans, 5@5½; in barrels, 4¾@5. Beeswax, 28½.

R. Hartmann & Co.,
May 9. 14 So. Second St., St. Louis, Mo.

Chicago.—With April about all the trade in comb honey ceases so far as this market is concerned—occasionally a case sells, but no lots—so that prices are now practically without change pending the new crop. Extracted is exceedingly slow of sale, white ranging from 5½@7, and amber 5½@6, according to flavor, quality, and package. Beeswax is in active demand at 30.

R. A. Burnett & Co.,
May 8. 199 South Water St., Chicago, Ill.

Wanted—Beeswax. We are paying 28c cash or 30 atnts per pound in exchange for supplies for pure av· Ciage wax delivered at Medina, or our branch houses ce 144 E. Erie St., Chicago, 44 Vesey St., New York erty, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

The A. I. Root Company, Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. Udo Toepperwein, San Antonio, Texas.

Wanted.—New crop white comb honey. Describe what you have, and state price.

Evans & Turner, Columbus, O.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

Wanted.—500 pounds fancy clover comb honey; cash; Michigan preferred. W. D. Soper, Jackson, Mich.

For Sale.—Basswood honey, 250-lb. bbls., at 6c; 60-lb. cans at 7c. E. R. Pahl & Co., Milwaukee, Wis.

For Sale.—White honey (mostly basswood) in five-gallon cans, at 7 cts. a pound.

C. J. Baldridge, Kendaia, N. Y.

For Sale.—Twenty-eight 60-lb. cans of beautiful raspberry extracted honey; white as clover, and equal as to flavor; sealed before extracting; crated two cans to the crate to ship; 7¼ cts. on car; sample free.

E. D. Townsend, Remus, Mich.

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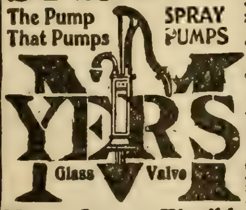

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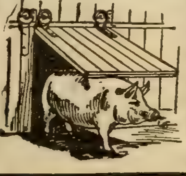

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One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load.
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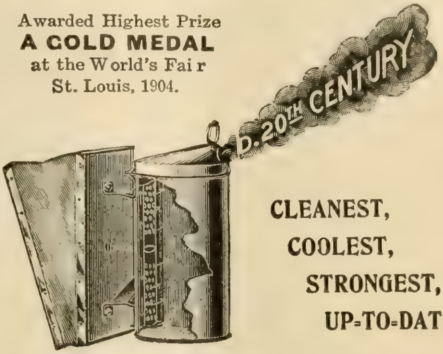
The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
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F. DANZENBAKER, MIAMI, FLORIDA.
or, Care of The A. I. Root Co., Medina, Ohio.

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Bee-supplies

Lewis Goods at Factory Prices

Root's smokers and extractors, Dadant's comb foundation, Bingham smokers. We sell hives arranged with the famous **Colorado Cover,** the best cover ever put on a bee-hive. Complete hives cost you no more with this cover than with other covers, but they are better.

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Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. A. W. Swan & Co , Centralia, Kan.

FOR SALE.—Bees, honey, land, and timber.
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Concrete Building Blocks

for building purposes are everlasting. Where cement can be had for a reasonable price, they make a cheaper wall than wood, brick, or stone. They are fire and frost proof.

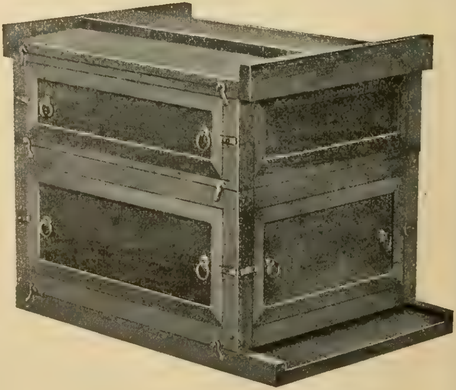
The "Handy" concrete building-block machine makes them. Price, complete, $50.00, f. o. b. Medina.

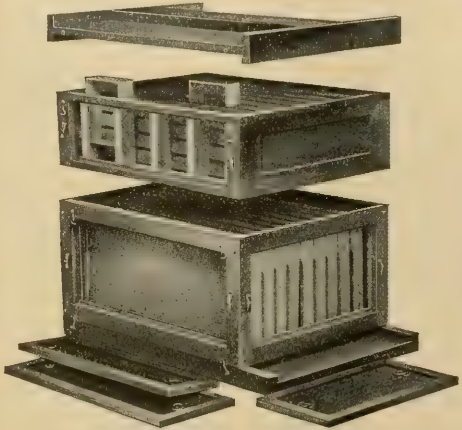
Write for descriptive circular and price list.

MEDINA CONCRETE CO., MEDINA, OHIO.

The Root Observation Hive.

To meet the increasing demand for a moderate-priced Observatory Hive, for use in schools and homes, we have decided to manufacture the style illustrated herewith. This hive is identical with our AE64P / 10, with the exception of the body and super sides, which are fitted with glass, together with wooden shutters for closing the hive while not observing. This hive permits the keeping of a regular colony of bees in a normal condition so that every phase of bee-keeping may be studied.





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Ten-frame hive, L. size, with super, in flat	$4 00
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One-frame hive, no super, with case, in flat	1 00
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do. ready for use, Italian bees, brood, queen	5 00
One-frame hive, with case and super, in flat	1 50
do. nailed, varnished, glass, no bees	3 00
do. ready for use, Italian bees, brood, queen	6 00

A. I. Root Company,

Factory and Main Office,
MEDINA, - OHIO.

Doing two men's work

may not be possible for a man using a honey-extractor arranged like the one described in the April Bee-keepers' Review, but it will be a great help in that direction. There is an illutration and description of an extractor in which the reel can be brought up to a high speed, then the cogwheels slipped out of gear, and the reel allowed to spin like a top, *silently* but effectually emptying one side of the combs while the operator is uncapping half enough combs for the next run, when the reel can be stopped almost instantly by a *foot-brake*, the baskets reversed, the wheels slipped into gear, the speed run up, then the gearing again slipped out of gear, and the reel allowed to spin again while enough more combs are being uncapped to complete the next run.

Almost any extractor can be changed over, or arranged, so as to possess these advantages.

Send ten cents for a copy of the Review showing how it can be done, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

To new subscribers
for the American Bee Journal

Every reader of *Gleanings* should also have the *American Bee Journal* EVERY WEEK. In order that those who are not now getting the *American Bee Journal* may give it a thorough "trial trip" at small cost, we make these two offers for **new subscribers.**

Three Months, 20c; or the Rest of 1905 for 50c

Sample Copy Free

Cut out this ad., fill out the blank below, and send it to us with either 20 or 50 cents, as you may decide. . . . . .

GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ills.

Find enclosed............cents for the weekly American Bee Journal as per above offer to a new subscriber.

Name..

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Hammond's Slug Shot for Potato Bugs, Currant, Cabbage Worms, Etc.

TO THE EDITOR OF AMERICAN GARDENING:

In your issue of June 18, on page 399, I notice a good article on the Colorado Beetle or Potato bug. For the benefit of your numerous readers I would advise them to try **Hammond's Slug Shot.** I have used it here this season with excellent results, on Potatoes, Egg Plants, Cucumbers, and Squash, for Potato Bugs and, also, for Striped Beetles, and it is the best remedy I know of, simple and effective. I purchased two of the **Dusters** which he advertised in your paper, and they are very useful articles. The best time to dust the plants is early morning, as the substance adheres much better when the dew is on. A light dusting is sufficient, and woe betide the bugs or the larvæ. Once they get a taste of it they shrivel up right away.

GEORGE STANDEN, Gardener to Col. D. S. Lamont, Millbrook, N. Y., 1904.

Sold by Seed Dealers and Merchants all over America.

Send for Pamphlet on Bugs and Blights to **BENJ. HAMMOND, Fishkill-on-the-Hudson, N. Y.,** for information about solution of Copper, Bordeaux Mixture, Grape Dust, and Cattle Comfort.

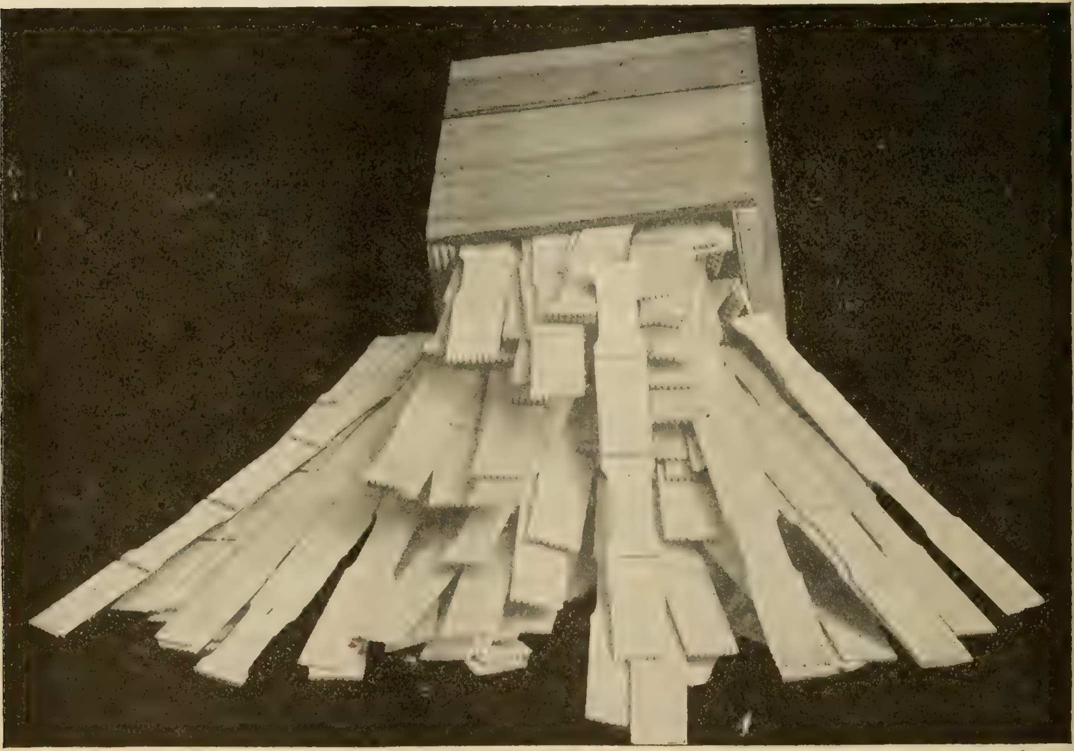
You - Are - Taking - No - Chances

WHEN YOU ORDER .... **Lewis Sections**

Every crate bears the name "LEWIS," and is guaranteed to run full count, and give satisfaction. :: :: ::

AN IMPORTANT FACT.

Many bee-keepers all over the country, no matter where they are or of whom they secure their other goods, insist on LEWIS' SECTIONS **for there are none better.**



These are Lewis Sections. Aren't they Beauties? Read what others say about them.

G. B. LEWIS Co., Watertown, Wis.
Gentlemen:— I want to say that I consider your make of sections the nearest perfect of any I have ever had. I have folded packages of 500 without breaking one, and I can not say that of others I have used.
Deerfield, Ia. GEO. BROWN.

G. B. LEWIS Co. Watertown, Wis.
Gentlemen:—Everybody wants Lewis' sections.
Centralia, Kan. A. W. SWAN.

G. B. LEWIS Co., Watertown, Wis.
Gentlemen:—The goods are simply fine in every respect. We have compared a few of the No. 1 sections, bought of another firm, which we carried over from last season, with your No. 2 and find that the No. 2 are superior. NORRIS & ANSPACH.
Kenton, O., May 4, 1904.

G. B. LEWIS Co., Watertown, Wis.
Gentlemen:—I have received those sections in good shape, and am well pleased with the same. They are all right in every way. I shall recommend your bee-supplies to other bee-keepers. I think you make better goods than any other firm in the world. Accept my thanks. GEO. B. MCDANIELS.
Grand View, Ia., June 3, 1904.

Lewis' Sections have made the Lewis Company famous. They are for sale all over the World.
Send for free catalog of 88 pages.

G. B. Lewis Co., Manufacturers of Bee-Supplies. **Watertown, Wis.**

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year Medina, Ohio.

Vol. XXXIII. MAY 15, 1905. No 10

Stray Straws

By Dr. C. C. Miller.

J. D. BARFIELD, I wonder if you did not let that Danzenbaker hive stand in the hot sun, making three swarms desert it, page 490. Next time shade it some way, and be sure that, for the first two or three days, the cover fails by half an inch or an inch to cover the hive. [Good suggestions.—ED.]

GEO. M. PHIFER, when cleaning old frames to use again, especially to get the wax out of the grooves, uses a common putty-knife. Heat it over an ordinary lamp, and there you are. [The time taken necessary to heat the knife would make the operation slower than to use the cold knife all the time, it would seem to me.—ED.]

F. GREINER was, I think, the first to use the term "queenright." I had envied the Germans their word, "weiselrecht," but was not smart enough to use exactly the same term in English. Mr. Greiner was. "Queenright," Mr. Editor, means more than "a colony with a queen." A queenright colony is "a colony that has a queen that is all right."

ALLOW ME to suggest to E. Van Fradenburg, page 489, the very great advantage of having crowded entrances in pairs. It is equivalent to doubling the distances. Let each pair of entrances be close together, separated by only a little board between them, projecting outward; and, although the two entrances be only an inch apart, each bee will keep to its own side.

"WHY USE a dummy in eight-frame hives when none is needed in a ten-frame hive?" page 496. Begging your pardon, it was a mistake to make ten-framers without dummies. [You refer to statements made by members at the Michigan State convention. But a ten-frame hive with a dummy would only add an extra expense. I suppose the most of the ten-frame hives we sell are run for extracted. If you mean a thin *division-board*, we do supply them with both eight and ten frame hives—always have done so.—ED.]

A THIRD MORE extracted than comb, says a footnote, page 491. A half more might be nearer the truth; but I'm willing to arbitrate the question. [In any case, the proportion can be only a guess. I am willing to accept a half more; but an article by a correspondent two or three years ago (I think it was by R. C. Aikin) went to show, by some experiments made, that the difference was nearly as much as we had supposed. That was one reason why I put the average at a "third" rather than a "half" the usual rule.—ED.]

E. L. PRATT tells, in *American Bee-keeper*, about wintering queens successfully in the Swarthmore mating-boxes. He takes two or three cupfuls of young bees to a box, and on a warm day just before winter gives them two fat combs of honey, leaving them undisturbed till spring. "To prevent any possibility of the queens wandering away from the cluster, place a piece of queen-excluding metal over the flight-hole on the inside. A ¾-inch flight-hole is none too large for wintering queens in Swarthmore mating-boxes. [As I said in our last issue, that might do for a climate like that of Philadelphia, but I doubt very much whether it would do in one as cold as we have here at Medina, to say nothing of one still colder, like that of Marengo.—ED.]

"IF BEE-KEEPERS would use lots of printers' ink they would never need to worry as to the sale of honey," says R. L. Pennell, page 487. Quite right; and is there any better way to do it than through the Honey-producers' League? If every bee-keeper who takes GLEANINGS were to join the League, I wonder how much money it would allow to be used for printers' ink. Possibly the editor could give us a guess. [It is hard to estimate on this, but the figure would not any be less than $25,000 if every one of our subscribers would give his pro-rata share toward the Honey-producers' League. My first rough estimate was over $50,000, which figure I cut square in two. So far manufacturers of bee-keepers' supplies have pretty generally contributed toward the fund.—ED.]

A. I. ROOT wants "something more about the wintergreen." In Pennsylvania it is common in the mountains. I never saw it on low ground; but it likes the very loose rich soil well covered with leaves. A favorite place is under shelter of laurel bushes, and it is an easy thing for the novice to mistake young laurel seedlings for wintergreen. But a taste quickly undeceives him. It is called also mountain tea, checkerberry, and sometimes partridgeberry. But the true partridgeberry (*Mitchella repens*), although bearing some resemblance to wintergreen (*Gaultheria procumbens*), is a different affair; and with its double, scarlet, insipid berries is much more beautiful. If an ornamental plant is what you're after, Bro. Root, better turn your attention to the partridgeberry rather than wintergreen.

"IN SOME CASES six weeks will be too short, and in other cases five would be too long a period" for the life of a worker-bee, page 465. Sure, but that's aside from the question, "What is the average?" If the common teaching is wrong, the sooner it is righted the better. But there has been some proof offered that six weeks is the average life of a worker. If that's to be changed to five, surely we should have some reason for the change. If Clericus is right, give us the proof, Mr. Editor, but please don't becloud the issue by irrelevant statements that no one thinks of disputing. [The conditions are so extremely various that I am not sure but five weeks would be as good an average as six. The actual difference is only small. It might be better still not to make a definite statement, but say from four to eight weeks. In other words it seems to me it would be hard to indicate an average reduced to so many weeks.—ED.]

LOUIS H. SCHOLL, page 468, thinks that foul brood across the water may "be of a milder form than the dreaded disease we have in America." *Bacillus alvei* ought to be the same everywhere, but some have suggested that, where the disease has been longer in existence, the bees have become more immune to it. [There are others who share the same opinion as Mr. Scholl, or at least have expressed themselves in these columns. *Bacillus alvei* will be the same everywhere; but the same microbe, under different conditions, might be much more destructive than under others. Is it not impossible that *Bacillus alvei* could be less destructive in Europe because of the environment than the same germs in this country? However, I share your opinion that the disease is probably more destructive in this country because the average locality is less familiar with it than in Europe.—ED.]

OPINIONS harmonized while you wait. Page 291, under "Winter Flights. . . Opinions Harmonized," you speak, Mr. Editor, as if you had never advocated "leaving the bees out several days or a week" for a midwinter flight. A Wisconsin friend, who has been looking up your past record, refers me to GLEANINGS, 1902, page 371, where you tell about brood being started by midwinter flight, and claim it as a point in favor of giving the bees a *week's* flight in February or March. Evidently in such a progressive thing as bee-keeping it will not do to be too reckless as to what one has or has not said in the past. [But, hold on, doctor, you and the Wisconsin man are reading more into the language than there is actually there. Turn again to the first reference, 291, and the very first sentence reads, "I am not sure there is any thing in the articles in this issue, on the subject above, that is not in harmony with what I have advocated in reference to these winter flights." Note I said "not sure." Nothing "reckless" or over-positive in this statement, surely, for that qualifies all the rest of the editorial. In the second paragraph of the same article, I gave, perhaps, the impression that I never advocated putting the bees out for several days or a week, but I did not make a declaration to that effect. But suppose I did. The second quotation, page 371, 1902, does not advocate any thing, but simply states what we did, without a recommendation. The article in question was on the general subject as to whether it was best to give midwinter flights, and then I went on to detail some experiments. The first lot of bees were left out for nearly a week, with the result that brood-rearing started. That was mentioned only incidentally, but this long stay was not "advocated" in that article; and the nearest endorsement I gave to it was this: That there was one point in favor of giving the bees a week's flight—the starting of brood-rearing. It so happened that spring favored the keeping of the bees before returning, longer than usual; but our rule has been one or two days, without brood being started.—ED.]

WINTERING BEES in a cellar with a furnace. The experience of the first two winters made me feel that, however good a furnace was for the people above, it was a bad thing for the little people down cellar. The first winter was not a fair test, work at putting in furnace preventing the bees from going in at the proper time. But there was no such excuse for the second winter, and I lost heavily, partly through starving in cellar, and partly from being taken out too early so as to feed them. It began to get into my head that, with the thermometer generally ranging from 50 to 60, bees would use up a lot more food. So I aimed to have a heavier supply for last winter. Yet one starved in cellar, and, I am ashamed to say, one starved after being taken out. That was the only winter or spring loss, except those I broke up because of queenlessness or bad queens. On the whole I am inclined to the opinion that the furnace is a good thing for the bees. The chief objection is that they need as much food as if wintered out. But practically it makes a mild winter for them, the cellar being kept so open most of the time that the air was as pure, almost, as outdoors; no appearance of diarrhea except in a very few hives, and, strange to say, the fronts of those few hives were very badly daubed. But inside the hives it was clean and sweet, and the bees showed no appearance of having suffered. It rather looks as if the warm temperature allowed the bees to go outside, empty themselves, and then go back into the hive in a more comfortable frame of mind. If future winters turn out the same, the furnace will be a good thing. [An ordinary bee-cellar with a furnace affords almost precisely the same conditions that we have in our machine-shop cellar, where we have scored such splendid results in wintering. Notwithstanding some experiments that were made some years ago, showing that dampness was not detrimental to bees in a cellar, I am satisfied that dryness and a temperature of 45 or a little above, with a large amount of ventilation, are very important essentials. At two of our outyard cellars we have dampness, even to the extent of mud, in one of the cellars. The mortality was heavy in both. Now, then, with a furnace in the cellar we can have plenty of ventilation, perfect dryness, and a better control of the temperature. If the temperature gets too high, opening the windows will bring it down, and at the same time supply the essential ventilation. If I mistake not, doctor, you wintered your bees last winter the best you ever did, because you had perfect dryness, and because you gave a large amount of ventilation. We are beginning to learn something on this wintering question.—ED.]

BEE KEEPING AMONG THE ROCKIES
BY J. A. GREEN

BE A BOOSTER.

Join the Honey-producers' League, and lend your money and your influence to the first organized effort to improve the condition of the honey market by the use of modern business methods. Your help is needed. Lay aside your selfishness, and do not be afraid to help yourself, because in so doing you may help others.

GIVING BROOD TO FORCED SWARMS.

Opinions differ as to whether it is advisable to give a frame of brood to a newly hived swarm. My experience is that a shaken swarm to which a frame of brood has been given is much more apt to swarm out than one hived in an empty brood-chamber—this when they are hived in one section of my hive, equal to about five L. frames.

R. C. AIKIN AS EDITOR.

The bee department of the average agricultural journal is usually not much credit to anybody; but one of the brilliant exceptions to the rule is that of *Irrigation*, which has been selected as the official organ of the Colorado State Bee-keepers' Association. With our old friend R. C. Aikin, secretary of the aforesaid association, in charge, it is destined to be both reliable and interesting.

LEGISLATION AGAINST SWEET CLOVER.

Some misguided individual introduced a bill during the last session of the Colorado legislature, declaring sweet clover a noxious weed, and requiring its cutting before coming into bloom, under penalty of a heavy fine. Fortunately the bee-keepers had some good friends in the legislature, with saner ideas on the subject of weeds, and the bill was effectually killed in committee.

SOLAR EXTRACTORS.

Have you a good solar wax-extractor? If not, better buy or make one. There is no other way by which as nice wax can be made with as little labor as by the use of a good solar, properly managed. Solars can not handle old dry brood-combs profitably; but for all other kinds of wax refuse they are ahead of any other process. There is some wax left in the refuse from a solar. To get this out profitably you need some kind of pressure combined with boiling or steaming. If you own more than a few colonies you can profitably own both a solar and a wax-press.

HELPING WEAK COLONIES.

Many bee-keepers consider it the proper thing to help along and build up weak and queenless colonies found early in the spring by giving them frames of brood and bees from stronger colonies. Better not. The queenless colony at this season of the year is usually worthless, and the weak colony had better be left to its own devices until later. The frame of brood you would give to it is worth more in the colony from which you would take it. If a colony is strong enough to spare profitably a frame of brood, better give it to a colony of medium strength than a weak one. Remember the harvest depends on the number of bees at work, not on the number of hives with bees in them.

VETO OF MISSOURI'S FOUL-BROOD BILL.

It must be conceded that Governor Folk, of Missouri, is an able man. His record in fighting corruption in that State, rewarded by his practical indorsement by both parties, and his election in spite of opposing political conditions, prove this. His veto of the foul-brood bill which recently passed both Houses of the legislature must not be laid so much to narrowness on his part as to the fact that even good men are not always able to see all sides of a subject with which they are unfamiliar. Doubtless before another foul-brood bill is brought to him for his signature the bee-keepers of Missouri will see to it that he has a chance to receive some elementary instruction on the subject of contagious diseases.

LITERATURE IN SHIPPING-CASES.

When I wrote the article on p. 357 I had no idea of being thought original in advocating sending out leaflets with each case of honey. This has already been done by others, and advocated in the bee journals at various times. I really supposed, though, that I was the first one to think of using a printed poster in place of the ordinary plain cover-sheet. Only a few days after I wrote it, however, while overhauling some old journals I accidentally came across the following, read by Irving Kenyon at the Onondaga Co., N. Y., convention: "I think it would be a good plan to lay a paper large enough to cover the sections in each shipping-case, and print on it, with red ink, and with type large enough to be read without glasses, '*Please keep this honey dry and warm. Don't store in a cellar, meat market, ice-chest, or cold storage.*'" I presume I read this at the time it was published, but entirely forgot it until the present condition of the honey market revived the idea in my mind.

WHAT SHALL THE HARVEST BE?

In attempting to forecast the honey-yield for the coming season, two guesses make themselves prominent. One is that there will be a great deal of swarming in this valley. This is based on the fact that the unusual amount of snow and rain during the past winter and spring is producing an unusual number of wild flowers, especially the yellow cleome (*Cleome lutens*), which is now springing up thick all over the desert, which ordinarily has no honey-yielding flora. This blooms at a time when there is ordinarily a dearth of honey-plants, keeping brood-rearing stimulated to the utmost during May, and bringing the bees into the beginning of the flow from alfalfa strong in numbers, and with their hives already well stored. Similar conditions two years ago produced an extraordinary amount of swarming; and the probabilities are that this will be duplicated the coming season. The other guess is that there will be an unusual number of grasshoppers this year. They were very abundant last year, and did considerable damage to the honey crop in this locality by eating the blossoms of the alfalfa. The myriads of eggs they laid in the fall may hatch into a devastating horde for this season. If so it will not be the first time the honey crop here has been ruined by grasshoppers.

WEIGHT OF SECTIONS.

The fact was brought out at the River Falls, Wisconsin, convention that one of the members whose honey weighed 26 lbs. to a 24-section case had to submit to a cut of 1½ cents per lb. on that account. This accords with what some of our honey-merchants have told us before. People will pay 16 cts. for a 16-ounce section. They will willingly pay 14 cts. for a 14-ounce section. They will gladly give up 12 cts. for a 12-ounce section; but somehow when they are asked to pay 18 cts. for a section that weighs 18 ounces many of them will look askance, and conclude that the price is too high. At the root of this is undoubtedly the deplorable idea that a section of honey weighs a pound. I think it is unfortunate for the honey-producer that this idea ever gained currency. It is impracticable and impossible to secure any thing like absolute uniformity in the weight of sections; and the nearer they approach a pound in average weight the greater will be the variation in individual weights. This is especially the case when separators are not used. The pound-section idea is a delusion and a snare. If you want to please the dealer and satisfy the consumer, turn your attention to the production of sections as uniform in weight as possible, so that, when sold by the piece (as they will be anyhow), no injustice will be done to anybody.

FOUL BROOD.

After making due allowance for the fact that foul brood may be cured in a variety of ways by the expert, and with but little risk of spreading the disease in so doing, the fact remains that, for the average bee-keeper, the easiest, quickest, surest, and (four times out of five) the cheapest way to get rid of foul brood is to burn up all infected colonies, bees, combs, and hives, just as soon as it is discovered. The attempt to cure it or to save hives or honey, or to put off dealing with it till a more convenient season, usually results in spreading the disease. The infected colonies which he intended to treat at once are left until some of them become weak and are robbed; the bees find their way into the hive which he closed up so carefully, or into the building which he was sure was bee-tight. Some have felt sure that the nice combs of honey at the sides of the hive could not have any thing wrong with them, so they fed them to colonies that were short of stores, with the usual result. Some could not bear to destroy such nice honey; and as they could not well use it themselves they gave it to their neighbor. The neighbor's wife cut the honey out of the frames, and, in the kindness of her heart, threw the frames out on the woodpile for the bees to clean up. Perhaps the bee-keeper moves the infected hive to another part of the apiary, where he thinks he can treat it more safely, and the returning bees enter the neighboring hives. While this will not always convey the disease, it certainly does sometimes. Or he shakes the bees off the infected combs at an improper time or in a wrong way, so that the bees scatter into all the neighboring hives, making one case of the disease into several. One man shook the bees of a diseased colony after all the bees had stopped flying, and then went to supper, leaving the infected combs exposed. When he returned, half an hour afterward, the air was full of bees from half a dozen colonies that were busily engaged taking care of the unexpected find. These things are not confined to the inexperienced keeper of only a few colonies. They are sometimes met in the bee-keeper of many colonies and years of experience. In fact, the beginner anxious to learn is often more successful with foul brood than one whose years of experience have made him careless, or who thinks he knows it all.

Editorial
By E. R. Root.

OUR acknowledgments are due the *American Bee Journal* for a fine write-up, in the May 4th issue, of The A. I. Root Co. There appears on the front page a view of The A. I. Root Co.'s buildings, and portraits of the active men in the company itself. These half-tones appeared originally in White's *Class Advertising*, a beautiful monthly magazine devoted strictly to agricultural advertising, of the clean sort, and our thanks are extended to that publication also.

WE have been having alternately hot and chilly weather, with much cold rain, this spring. We observed that the small baby nuclei are standing these extremes even better than the old-fashioned Langstroth-sized two-frame nuclei. The bees can keep a small cubical space warm much more readily than a flat oblong room with a great deal of surface exposed to the weather. Two hundred bees will keep warm better in the former than 500 or 1000 will in the latter. Another thing, we observe the bees in the baby boxes with the small entrances seem to resist robbers better.

HATCHING EGGS OVER A BEE-HIVE.

ON page 324 I told you I had written Mr. Decker in regard to his success which has been so widely paraded through the papers; but up to date he has made no reply whatever, although I sent him a copy of our journal, and asked him to tell us whether he authorized the extravagant claim made through the papers, purporting to come from him. I learn from bee-keepers in his vicinity that he is considered to be a reliable man. From the fact that not one report has come from any of our readers, of successful hatching of eggs over a bee-hive, we must conclude that Mr. Decker has either found out that he made a mistake or else in his enthusiasm he was led to exaggerate. Incubator men agree that eggs must be kept at 102, or, still better, 103; but you will notice by referring to page 368 that the temperature in the warmest part of the hive does not exceed 98 right in the center of the brood-nest. During the hottest summer weather the experiment might succeed, but I do not think it can compare with an incubator, either in the expense of running or making a succesful hatch.

Here is another.

> Here is a clipping which I cut from the Indianapolis *Sentinel*. You may find out whether there is any truth in it or not. I tried the same some years ago, and failed, and think this is a hoax. T. MCMANUS.
> Rushville, Ind., Apr. 29.

We learn from the clipping inclosed with the above letter that Mr. Decker is 70 years old, and has been working with bees and poultry all his life; and it also contains the oft-repeated story that eggs over a hive will hatch in 19 days, while 21 are required with a hen or incubator. The clipping winds up with the following remarkable statement:

> The claim is made that one hive in this manner may be made to do the work of eight sitting hens, and at the same time yield 100 pounds of honey in one season.

A. I. R.

SHAKEN OR BRUSHED SWARMS; A COUPLE OF POINTS TO REMEMBER.

A YEAR ago when this question was discussed, and a great many tried the method, there were some who failed. An examination into the conditions in such cases showed that the bees had been shaken when there was no indication or desire on their part to swarm. A general "shake-up," and putting into entirely different quarters, caused trouble, with the result that the bees so treated swarmed out, defeating the very object of the anticipatory swarming, for this is really what brushed swarming is. I think it is pretty generally agreed that there should be swarming-cells with eggs or larvæ, showing unmistakably a desire to cast a swarm in the very near future. Not until then should shaking be undertaken.

Another factor contributing toward failure on the part of a few was shaking on to drawn combs or full sheets of foundation. While some have practiced the method successfully, shaking on to either, the majority seem to be of the opinion that only foundation starters should be given in the brood-nest. The forced swarm will then immediately occupy the super or partly drawn sections, which will, of course, be placed on top of the swarm, and in the mean time gradually draw out the starters below for the occupancy of the queen. Some give a frame of unsealed brood with the other frames of starters in the new hive set on the old stand.

Perhaps some of our new subscribers will feel interested to know to what the foregoing has reference. "Shook swarming," as it is generally called, briefly described, is this: Just a few days before a colony is about to cast a swarm, or is seen to show indications of such desire, the old hive, with the super, is moved to one side a few feet, entrance pointing in the same direction, and a new hive with frames of starters is put on the old stand. Three-fourths of the bees in the old hive are shaken or brushed off the combs in front of the new hive now on the old location. Last of all, the super on the old hive is put on the new one. In two or three weeks more, when the brood is all hatched in the old hive, the combs may be given another shake, giving the swarm the rest of the bees it would have had provided it could have been induced to remain contentedly in the old hive. The queen, virgin or laying, in the old hive should be removed before the second shake.

This method of swarming makes it possible for the apiarist to force the probably inevitable swarming to a time when he can take care of the bees. If the colony was left to itself the swarming probably would take place when he was away or when it would not be convenient.

SLIP-GEAR HONEY-EXTRACTORS.

BICYCLES having a clutch by which the propelling crank can be instantly and easily thrown out of gear, leaving the cranks at rest while the machine is in motion, have come to be quite common. After riding one of these machines it occurred to me that the same principle might be applied to the propelling crank of an ordinary honey-extractor. An experimental machine or two were made, and so constructed that the large gear-wheel could be instantly thrown out of mesh with the small pinion on top of the perpendicular shaft. This permitted of getting the extractor up to a high rate of speed, loaded with combs, when, by the touch of a button, the horizontal shaft and crank with its large gear-wheel would be instantly thrown out, allowing the reel to revolve noiselessly, and without the grinding dragging friction of the unequally balanced crank-shaft and gear-wheel. The result was that the baskets would revolve much longer, permitting the acquired momentum to throw out some of the still clinging residue of honey, just at the moment when the application of power was released.

About this time one of our subscribers accomplished the same result by knocking out a few teeth from the large gear-wheel. I do not recall his name now. At any rate, he wrote us, explaining his ideas. At first thought it seemed impossible that any thing like this could work; but, to our surprise, it did work. But it is easy to see that, in the hands of the average person, the gears might ride on top of each other, resulting in a breakdown.

About this time, also, we heard that Mr. James Heddon was making use of a slip gear and an improvised brake. The Heddon-Cowan extractor is shown in the *Bee-keepers' Review* for April 15. The principle of the Heddon slip gear is practically the same as ours, and, as nearly as we can discover from the picture and illustration, far better than the knocked-out-teeth principle.

The Heddon principle, as well as the one we use ourselves, allows the horizontal shaft with its large gear-wheel to be drawn away from the pinion on the perpendicular shaft just far enough to let the gears out of mesh. We used a metal fork, the same as Mr. Heddon, the same straddling over the shaft between the center bearing and the large gear-wheel hub. In order to get sufficient room for this, this hub was cut off, in our case, about ¼ inch so as to allow a fork (¼ inch thick) to slip in between the bearing and the hub of the wheel. When the fork was pushed into place the gearing would be in mesh. Pressure on a lever would lift the fork up, when a spiral spring would automatically crowd the horizontal shaft endwise just far enough to throw the gears out of connection.

The same principle can be applied to extractors already in use, or almost any of the Cowan and Novice construction. All that is necessary is to take off the large gear-wheel on the end of the horizontal shaft; cut or grind off one-fourth of the hub. Get your blacksmith to make a fork that will straddle the shaft in the space between the upright bar and the space now made vacant by reason of the hub having been cut away.

If there were any demand for slip gearing the Root Co. could, no doubt, make the necessary arrangements to put this feature on the market as an option for those desiring it.

THE A. I. ROOT CO. IN THE BEE-BUSINESS.

SOMETIMES when I attend conventions bee-keepers ask me how many colonies we have. I tell them, much to their surprise, that I do not know. A three or four frame nucleus I would hardly count as a colony. If I told how many hives we had with bees in, that would still be an unfair comparison when contrasted with the number of colonies owned by a honey-producer who runs for honey only. We have several queen-rearing yards and several honey-yards, the total number aggregating eleven in all. Two of these apiaries are in Cuba, two in New Jersey, one in Pennsylvania, one near New York, and five within five or ten miles of Medina; and the total number of colonies, or, rather, hives with bees in, not including baby nuclei, for they do not count, is approximately 900.

On page 535 of this issue we give a view of one of our New Jersey apiaries located at Salem, from which we supply bees and queens for part of our Eastern trade. The high board fence makes an ideal windbreak. Then there is a tool or smoker box right close to the gate, the convenience of which can readily be appreciated.

We have another yard at Jenkintown, Pa., and still another at Mattawan, N. J., and one near the city of New York, as already stated. We shall be glad to have our bee-keeping friends call at any of the yards; if they desire to see practical demonstrations, be free to ask for them. But before visiting any yard make arrangements in advance with either the New York or Philadelphia office—the former at 44 Vesey St., and the latter at 10 Vine St. There might be days when there would be no one in charge, hence the advisability of writing to either of the offices in advance.

Of course we are always glad to see visitors at any of our Medina yards, and our bee-keeping friends from near and far are invited to come and see us and look over the work that is going on. Queen-rearing will be under full pressure *a la* Swarthmore about the time this journal reaches our readers. The demand for bees is getting to be quite extensive. From our home yard and the basswood apiary we have made a good many shipments of bees and queens, and shall be sending out every day.

It has always seemed strange to me that there were not more bee-keepers who were willing to sell bees. In looking through the poultry journals I notice that nearly every breeder and fancier has eggs or trios to sell. There is good money in selling bees early in the spring, and our friends are invited to investigate this one department of the bee-business.

THE FIRST-PRIZE PHOTO OF AN APIARY, SEE PAGE 537.

In our issue for March 1, under the head of Special Notices we announced that we were in need of certain photos relating to bees, and that we would award certain prizes for the best pictures.

In response to this we received a number of fine and interesting pictures. A committee from our office was selected to classify the pictures and award the prizes according to their merit. The scoring-points were to consist of clearness and artistic beauty as well as something interesting and instructive for every-day practical work. The committee knew none of the bee-keepers who sent the photos in, and awarded the prizes solely on the scoring-points above named.

The first prize for a view of a bee-yard was won by Ernest W. Fox, of Hillsboro, Wis., and the picture is reproduced on page 537. Whether E. W. Fox is related to Elias Fox, of the same place, so well known to the bee-journal readers, I can not say.

In the prize-winning picture there is a fine blend of high-light and shadow, or what an artist calls "atmosphere"—in short, nature as it is, and not as it would be after man has made it over according to his ideas of landscape effect.

We received other photos showing the hives arranged with geometrical regularity, and grass mown down as in a park; but this picture combines a beautiful touch of nature just as she is, with the practical every-day affairs of life. The background of the woods is suggestive of coolness, peace, rest, and quiet. The ferns in the foreground, with the leafy stillness, combine to set off the view as in a wreath.

As to the practical part of the picture, the location is ideal in that it is a side-hill. The winter repository on the right is reached by an easy grade of path that permits the loads of combs to be run down hill and extracted and brought back empty, and put on the hives again; and when winter finally comes on, the hives can be carried down hill toward the cellar and then put back on their summer-stands in the spring a good many pounds lighter. The side-hill cellar offers the advantage in that it makes it possible to enter the bee-cellar without going down steep steps as into a cistern, as it were. As those know who have tried it, carrying heavy colonies up and down steps into and out of a dark cellar is not an easy job.

But the picture suggests another feature, and that is the two solid windbreaks on one side and on one end. The yard is probably not entirely closed with woods, else there would not be the need of the stones on the hive-covers. (By the way, the stones are the only things that mar the picture.) The tent on the left is strongly suggestive of outdoor air and good appetites—two things that help make life enjoyable. The medical fraternity has just begun to discover that tent life is the best cure for diseases hitherto regarded as incurable. What is good for a sick man must indeed be invigorating to a well one.

The hives tiered up two and three stories high, the kegs or barrels of honey, the honey-extractor, all betoken prosperity. It is, therefore, fortunate that the picture was taken when the yard was wreathed out in all its glory.

This is the first of the series of prize pictures that will be presented, and others will follow from time to time.

Below we give the list of the successful prize-winners. There are some other excellent pictures that did not win any prizes that we shall be able to use, and will pay for according to their merit.

The object of this prize contest was to secure certain pictures for our industrial publications on bees.

For best photo of apiary:
1st prize.—Ernest W. Fox, Hillsboro, Vernon Co., Wis.
2d prize.—Chas. Macklin, Morrison, Whiteside Co., Ills.
3d prize.—Adam A. Clarke, LeMars, Iowa.

For best photo of any other object interesting to bee-keepers:
1st prize (swarm).—A. L. Errett, Madison, Westmoreland Co., Pa.
2d prize (swarm).—W. C. Naftel, Naftel, Montgomery Co., Ala.
3d prize (bee-tree).—Geo. A. Fenton, Mazeppa, Wabasha Co., Minn.

"THE SENATE PLOT AGAINST PURE FOOD."

In the *World's Work*, a beautifully illustrated and ably edited magazine, published by Doubleday, Page & Co., New York, appears an article by Edward Lowry, with the foregoing heading. It would appear from this article that the interests of the people —those who are and should be most vitally interested in national pure-food legislation—have been most shamefully ignored, and that "special interests," such as the whisky traffic, the glucose, pickle, ketchup, canning, and patent-medicine lines of business have had most careful consideration from the dignified Senators. Pure-food legislation has been up in our national Congress for upward of twenty years; but in each and every case it has been blocked in the Senate for some unexplainable reason. The various bills are allowed to pass the House; but when they come up before the upper House they have generally been killed in committee because some special interest would suffer. Mr. Lowry says, "It is difficult to assign reasons why some of these men [referring to the Senators] have opposed a measure which every one, except those to be punished, acknowledge to be both desirable and necessary."

One slogan of the opposition is this: "If you undertake to make all people perfectly honest in their dealings, you have a very large job on your hands," which practically means, if you can't help yourself sit down and be imposed upon all your natural life. Then the opposition defends the "misbranding and the adulteration of foods with so-called harmless substitutes on the ground that it puts certain products which, in their pure state, are dear, within the reach of the poor man." But, *does* it? If that same poor man could know that he was paying two or three prices for an abominable substitute under a misbranded name, *before* paying down his hard-earned money, would he do it? The statement is made, too, that, unless preservatives can be used, many valuable food products would go to waste which might otherwise be made available for human consumption. If it can be proven that these preservatives are harmless—absolutely so (something that has never yet been done, and probably never will be), then there might be some show of reason in this line of argument.

Mr. Lowry's article all through comes down heavily on the United States Senate, and singles out certain ones of the Senators representing some of our great commonwealths who have stood out persistently against any legislation of this character; very fortunately, this question of pure-food legislation is like Banquo's ghost—it will not down. The people are getting stirred up, and some day they will have a reckoning with some of these Senators unless they withdraw their opposition. But in spite of all this comes the encouraging news that three-fourths of the States of this Union have passed pure-food laws. The "special interests" are already beginning to squirm. They are beginning to see the beginning of the end.

Just now we need a national pure-food law that will prevent the importation of misbranded and adulterated foods from one State into another. When that is done, and the other fourth of the States without pure-food laws are protected, the bee-keepers of the country will see a decided change for the better. When the general public can *know to a certainty* that honey labeled as such in the bottle and in the section is absolutely pure and genuine (because it would be impossible for any thing else to be sold), then we may expect the business of the bee-keeper, and all other producers of pure food as well, to be much more profitable than now.

THE NEW HONEY-PRODUCERS' LEAGUE.

WHILE some have felt that there was undue haste in the organization of this new movement for the bettering of prices on honey (and to an outsider it *looks* that way), yet the conditions were such that there was not time to do any thing but to start *something* going, and that instanter, then later on make the necesary modifications after a little trial experience had shown what was wisest and best.* The criticism has been made, also, that the new movement ought to have been under the auspices of the National Bee-keepers' Association. But the promoters of the League, who gave this particular thought, say that the constitution of the National as it now exists would not permit of so large a call for funds. However this may be, it is not time to swap horses in the middle of the stream, or, to vary the figure, discuss whether we ought to have ridden this horse or that.

While I had nothing to do with the organization of the new movement, I felt that, though it did not suit me exactly in some respects, it was good enough to push forward, and then later on rectify whatever might not be to our liking.

Referring to the National, I see nothing in the way of having the League amalgamated with the old organization. This might be discussed at the coming meeting at San Antonio, and a committee be appointed to perfect a plan of union which could be ratified as soon as the necessary change could be made in the constitution. The new National then might have two departments—one of publicity and of education, as now undertaken by the League; the other to continue on with the present work already carried on by the National Association as now organized.

At all events, brethren, let us get together and push *both* organizations; and if it seems wise to amalgamate them, do so at the proper time later on. But let us be doing *something*. I have talked with one or two officers of the League in regard to this possible amalgamation, and they see no difficulty in the way.

Already the League has been doing some splendid work, the details of which it is, perhaps, not wise to make public at this time.

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* Perhaps it ought to be said that it would be simply impossible to project an entirely new organization to do *new* work, and have it perfect at the start, even if months and months were taken. Better a *working* something, even if a little crude, which can be reorganized after a little *experience* has shown what can and what can not be done.

GENERAL
CORRESPONDENCE.

HONEY CONSUMED BY A COLONY OF BEES IN ONE YEAR.

Some Interesting Data Collected to Go to Show that the Amount may Run from 200 to 250 lbs.; a Valuable Article.

BY ADRIAN GETAZ.

Some time ago I made the statement that a good colony of bees must consume for all purposes about 200 lbs. of honey every year. Proof was called for, and the statement variously commented upon, most of the writers thinking the figures too high. As a matter of fact they were based upon the amount of honey lost (or, rather, used) by the bees during the feeding-back process.

It is needless to say that this amount consumed must vary exceedingly, according to the strength of the colony, the amount of brood raised, the temperature, and a number of other conditions not necessary to mention.

If we look into the matter systematically we shall see that the amount consumed will be made of several parts—

1. To keep the bees alive.
2. To furnish the heat necessary to the welfare of the colony.
3. To secrete the wax.
4. To feed and raise the brood.

Let us examine them separately.

KEEPING THE BEES ALIVE.

How much does it take to keep the bees alive? I know of but two experiments that can throw any light on this question. The first is by Mr. Dumont, in *L'Apiculteur*, Nov., 1902, pages 65–69 of the Report of the Federation of the French Societies of Apiculture. Without going into details, the experiment shows that bees kept in a room at the ordinary temperature consume each 0.0097 gram of honey every day. (One American pound equals 452 grams.) The average weight of each bee was found to be 0.0988. It follows from that, that the bees not working consume daily about one-tenth of their weight of honey merely to keep alive. That would be nearly a pound for a colony of 40,000 bees.

At first sight, that seems enormous; yet, after all, it is not. The stomach of a bee contains one-fifth of its weight of honey. One tenth is only half of it—we might say half of a "square meal." Surely a working bee should be allowed half a "square meal" a day.

The second experiment is from Mr. Sylviac (*L'Apiculteur*, Aug., 1903, pages 29–33 of the Report of the Federation of the French Societies of Apiculture). A nucleus (about ½ lb.) was wintered sucessfully out of doors—that is, in a "rucher," a bee-shed walled on three sides, open in the front. The nucleus lived through the winter, which happened to be very mild in that region. The honey consumed daily averaged 0.028 gram for each bee. That is enormous. This, if no mistake has occurred, can be accounted for by the fact that such a small number of bees could not keep themselves warm enough without the utmost efforts and the largest possible consumption of honey.

The question may be asked here, "If it takes that much honey to keep the bees merely alive, how can a colony go through the winter with only 10 lbs. of honey or less?" Well, I don't know. Perhaps they "hibernate" part of the time. I merely give you the facts as I find them.

The amount of honey consumed above the quantity necessary to keep alive in order to keep the brood and the interior of the hive sufficiently warm must be exceedingly variable—nothing at all in very warm weather, but possibly more than one imagines in unfavorable circumstances, such as during the early part of spring.

WAX-PRODUCTION.

This is another very variable quantity. If a swarm, natural or forced, has to build a full brood-nest, that means something like 3 or 4 lbs. of wax at least. In weighing the wax from full sections of honey I found one ounce of wax to each section. Somebody reported once only half an ounce; but, if I remember correctly, it was without the cappings. A surplus of four pounds of honey per day would mean the production of ¼ lb. of wax per day; and if it takes 4 lbs. of honey to produce 1 lb. of wax, we have right there a daily consumption of 2 lbs. of honey for wax purposes only, not speaking of what may be needed in the brood-nest for capping brood, etc. But how many pounds of honey does it take to make a pound of wax? The experiments of Huber, and, later, of Dumas and Milne-Edwards, can not be considered. Huber wanted to prove, and did prove, that the wax is produced by the bees, and not gathered from the flowers. Dumas and Milne-Edwards wanted to prove, and did prove, that the wax, like all the other animal fats and similar products, is due to a transformation of the carbo-hydrates consumed. That term, carbo-hydrates, includes sugars, honey, starch, and other similar substances.

So far as the relation between the honey consumed and the wax produced is concerned, those experiments, as well as others similarly conducted, are worthless. The quantity of honey reported includes what the bees consumed merely to live. There were too few bees, and, therefore, they must have consumed a large portion of the honey given to keep up the necessary temperature for wax-producing and comb-building. Huber reported only the amount of comb built, and kept no account of the scales that might have been on the bee's body. Dumas and

Milne-Edwards report the increase of fatty substances in the bodies of the bees analyzed. That should be added to the amount of comb built, since it is nothing but wax in course of formation. Each individual experiment lasted only a few days. Now, it is well known that the wax scales do not appear before the third or fourth day after the feeding has begun or the flow has opened. This should be taken in consideration.

Another way to get at it was undertaken and discussed some time ago by Messrs. Sylviac, Maujean, Devauchelle, and others, and reported in the *Apiculteur* and the *Revue Internationale* during 1901 and 1902. The principle is this: During the first two or three days after a swarm is hived, quite an amount of comb is built, but very few bees go to the field—that is, when neither built comb nor foundation is given. Assuming that the few bees that go to the field gather enough to keep the colony alive, knowing approximately how much honey a given swarm will carry, and taking for granted that this honey goes to the amount of wax produced, or an equivalent amount, the ratio between the two can be ascertained. I say the "equivalent amount" purposely. The bees of a swarm carry a certain amount of wax scales, and wax in course of formation in their wax-producing organs when they come out of the old hive. But this is offset by what scales and wax in course of production they may have at the end of the three days.

Quite a discussion took place in regard to the correctness of these assumptions, and what corrections should be introduced. The upshot of the whole thing was an estimate of from two to four pounds of honey for a pound of wax produced under such circumstances. That is a good way off from the twenty or thirty pounds estimated by some other processes.

During the discussion Mr. L. Maupy suggested that, chemically speaking, 100 grams of wax contain about 82 grams of carbon, 13 of hydrogen, and 5 of oxygen. On the other hand, 100 grams of honey contain about 8 grams of hydrogen, 64 of oxygen, and 28 of carbon. There is, however, quite a variation in the different qualities of honey. Anyhow, it is evident that, to furnish the 82 grams of carbon contained in 100 grams of wax, not less than 2½ or 3 times that amount of honey must be used.

I am inclined to think that, so far as the transformation of honey in wax is concerned, that is all that is needed. But there is the extra warmth needed to be considered. To make it plain, let us consider a colony having no super. All the warmth needed is enough to keep up the temperature of the brood-nest. But let us add a super. Then this super will have to be kept warm enough to insure a rapid production of wax and the building of the combs, and, of course, an extra quantity of honey will have to be consumed to that end.

Prof. Bruner, at the National Agricultural School of Cordoba (Argentina), has made a specialty of wax-production for several years. The wax there is worth 54 cts. per lb. Dark honey can be bought in unlimited quantities for 6 cts. per lb. Briefly speaking, the process is to feed the bees all they will take during the whole season, cutting out the combs from time to time, and melting them. The honey contained is returned to the bees. He says it takes 68 lbs. of honey to make 10 lbs. of wax. But, of course, this 68 lbs. includes all that the bees consume for living, brood-rearing, etc. To this 68 lbs. we should add what may be gathered in the field. If Prof. Bruner's bees behave like mine, that must be very little. With me, bees abundantly fed, and having to build their combs, abandon the field work almost entirely. For further details of Prof. Bruner's work, see the *Apiculteur*, Feb., 1904, page 55, and the *American Bee-keeper*, April, 1904, page 75.

BROOD-REARING.

Very little can be said on this subject. The Hon. R. L. Taylor said once in the *Bee-keepers' Review* that some experiments he made show that it takes 2 lbs. of honey to raise 1 lb. of brood; but he does not give any detail. It might be interesting to note here that the food given to the larvæ varies according to the age and sex, but contains between one-fourth and one-third of honey. If Mr. Taylor's assertion is correct, a colony raising 1000 bees a day would use ½ lb. of honey daily to feed them.

FEEDING BACK.

Perhaps the honey that the bees consume while they are "fed back" can give us the nearest estimate obtainable. This amount is exceedingly variable. In a bee-keepers' convention Dr. A. B. Mason said that he had tried once, and obtained more honey in the sections than he had fed. Very likely the brood-nest was full when he began feeding, and the bees removed some of it "up stairs" to make room for rearing brood, as they invariably start a considerable amount of brood when fed. At the other end of the line we find Niver, who says that he once fed 30 lbs. and got 3 sections for his feed and trouble, and then thought best to quit.

In the A B C of Bee Culture are found A. I. Root's experiments in the same line. He said that the bees when fed back always begin by cramming all they can in the brood-nest, often something like 25 lbs., but after that the loss is only one-tenth of the amount fed. He does not state how much was fed daily; but in the context he speaks of having feeders large enough to feed 15 or 20 lbs. a day. With 10 lbs. fed per day, the consumed honey would amount to one pound daily. I think it is more than one-tenth. I have had but little experience in feeding back, but I found out that, after first crowding the brood-nest, the bees take a portion of that honey in the supers, and start a considerable amount of brood.

The only carefully conducted experiments we have are those made by the Hon. R. L. Taylor. The first was made in 1893, when

589 lbs. of unfinished sections were put on; 789 lbs. of honey fed; 1051 lbs. taken off at the end. The increase of the weight of the hives was 59 lbs. There were 7 colonies rather weak since they had been reduced to one Heddon section. The experiment lasted four weeks, during which the weather was cool and rainy. Assuming that the increase of weight of the hives was altogether honey, and that nothing was brought from the field, we find a daily consumption of nearly 1⅓ lbs. per colony. See *Bee-keepers' Review*, Nov., 1893, page 309.

In 1894 the experiment was repeated on only two colonies; weight of sections given was 70 lbs.; amount fed, 219 lbs.; amount taken off, 205 lbs. The colonies were all weak. The experiment lasted, like the one of the previous year, four weeks. This shows a daily consumption of 1½ lbs., not taking into consideration what the bees may have brought from the field. The weight of the colonies is not given. See *Bee-keepers' Review*, Dec., 1894, page 321.

In the experiment of 1895, three colonies were used. Empty sections—that is, sections with only full sheets of foundation—were given. The food was sugar instead of honey. The colonies were two sections, Heddon, and therefore stronger than in the previous years. The experiment lasted four weeks and a half. The three colonies gave quite different results. Assuming that the increase of weight of hives was altogether honey, and that 4 lbs. of sugar equal 5 of honey, the three colonies consumed respectively 31, 38, and 84 lbs. of honey. Now, why such a difference? No robbing was observed. There was a honey-flow, and the colonies not fed gathered enough for winter, and some of them gathered some surplus besides. The three colonies fed brought in pollen regularly. If the difference is due to the fact that the two first colonies may have brought in enough from the field to make it up we are compelled to admit a consumption of about 2⅔ lbs. per day. Furthermore, the increase of weight of the colonies, 76 lbs. for the three, was likely due in part to an increase in brood. See *Bee-keepers' Review*, Jan., 1896, page 7.

The experiments of 1896 were conducted on four colonies. One received 225 lbs. of unfinished sections and 169 lbs. of feed; 318 lbs. were taken off, and the increase of honey in the brood-nest was 10 lbs. The experiment lasted from July 15 to Aug. 29—that is, 45 days. Thus the consumption for these 45 days was 66 lbs., not counting what may have been brought from the field. For the reason given before, I should say this must be little if any. The other three colonies received 227 lbs. of sections and 219 of feed. The returns were 362 lbs. taken, and an increase of 6 lbs. in the brood-nest. The experiment lasted from July 15 to Aug. 6, and was ended owing to the swarming of the colonies. Daily consumption was nearly 1⅕ lbs. There was practically no increase of brood in the three colonies. See *Bee-keepers' Review*, Nov., 1896, page 325.

The feeding back is always done in very warm weather, and with a contracted brood-nest. These two conditions minimize the amount of honey used for brood-feeding and production of the necessary warmth. Taking all into consideration, it seems to me 1½ lb. a day is a conservative estimate of the amount consumed by a good colony during the working season. In my locality that means 4 months, or 180 lbs. Then during the fall and latter part of summer the bees are not completely idle; more or less brood is raised, and some wax is produced. But even taking a consumption of only ½ lb. a day for the ensuing three months, that would make an additional 45 lbs. remaining the five months of November to March inclusive. I said once that it takes 49 lbs. for winter. That may not be strictly correct. The bees here are flying very often, and raise quite an amount of brood, some of which is often chilled when the cold waves come, and therefore consume quite an amount of honey during the winter. But I know that a colony ought to have that much to be able to push brood-rearing to its utmost during the early spring, and be absolutely safe from the danger of starving should a week of raw rainy weather happen in April or May. However, let us put down 25 lbs. for winter, and we'll have for the year 250 lbs.

Knoxville, Tenn.

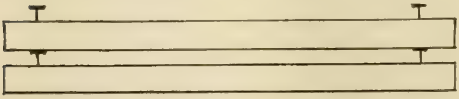
[The careful, conservative, and painstaking manner in which our correspondent has gone into this question, collecting and sifting the data and weighing the evidence, can not but win our admiration. If his conclusion is correct, that the average yearly consumption of honey per colony is 200 lbs. and over, then we may well ask the question whether it would not be possible to reduce somewhat this fixed loss, for the amount will be practically the same in a poor year as in a good one. There are at least two ways in which this may be done—1. By wintering indoors where practicable, and to regulate the temperature so that the bees will consume just enough and no more to keep up their existence. A cellar too warm or too cold will cause the bees to eat more than they require. 2. To stop unnecessary brood-rearing when that brood can not contribute a force of bees of the right age to secure a honey crop later on. If one has a strain of bees that will breed out of season he should get rid of them. In order to take advantage properly of either means one should study very carefully his locality; and right here it will be seen that there is a practical as well as a scientific side to this question.—Ed.]

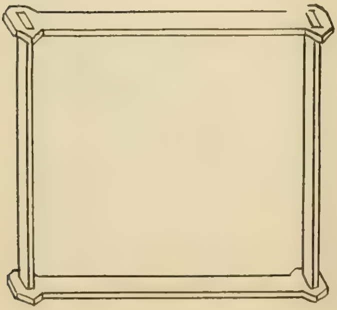
THE HOFFMAN FRAME.

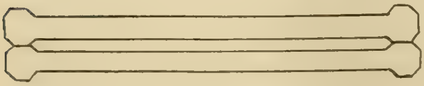
The History of Its Invention.

BY JULIUS HOFFMAN, THE INVENTOR.

Mr. Root:—As you wish me to write a little history of how I came to invent a frame as I use it for my hives, and which has become known among bee-keepers as the Hoffman, I will hereby do so. To answer how I came to devise my frame, I shall have to begin this little history by going back to about 50 years ago. I was then quite a young fellow, but kept a few colonies of bees given to me by father. Hearing then of Dzierzon, his new methods, and his Italian bees, I made up my mind to see him. I walked to his place at Carlsmarkt, which was only about two hours' walk from my home, and had the fortune to see the "greatest bee-keeper of Germany." Dzierzon at that time had revolutionized bee-keeping all over Germany by inventing a practical movable comb. The combs were simply made movable by being built to a bar furnished with a starter, suspended and movable in grooves cut in the sides of the hive. These bars were spaced by wire nails on one side, and practically self-spacing.







Later the Baron of Berlepsch invented a movable frame — about the same time, I understand, that Langstroth invented his frame in this country. The Berlepsch is a spaced frame, made so by projections on top and bottom bars. For hives as they were mostly used then in Germany, being worked from the side or back of the hive, the Berlepsch was practical, and a great improvement over the Dzierzon bar, but would not do for hives worked from the top, as are used in this country entirely.

Coming to this country in 1866 I brought along a colony of Italian bees, and after a time made up my mind to make bee-keeping my business pursuit. I began with the Berlepsch frame and hive, but soon found that I should have to change to a top-opening hive, and could not use the Berlepsch frame. I next tried the standing Quinby frame. Although the Quinby hive and frame is largely used yet in New York State by extensive and successful bee-keepers, I did not, for some reasons, adopt it. Then I tried the Langstroth, the best-known hive in America, but soon found I must have a spaced frame for rapid handling and accurate spacing, and, what is not less important, not to be a swinging frame on account of moving the hives.

I then constructed a frame with a top-bar of the Berlepsch style; the side-bars 1⅜ wide, close-fitting the whole depth of the frame; the bottom-bar ⅞ wide.

This frame suited me fairly well; however, after a fair trial I found there was more close-fitting about it than needed. So I narrowed the lower half of the side-bars to ⅞ wide, like the bottom-bars. Longer experience, however, induced me to have the close-fitting part of the side-bars only one-third the depth of the frame. This I found sufficient to secure straight hanging of the frames, and to reduce the squeezing of bees in handling, to an inconsiderable degree. Soon after, in order to reduce the contact of frames more yet, without sacrificing any of the self-spacing features, I devised the V shape on one edge of the side-bars, so that the V edge will meet the square edge of the joining frame. The frame as I have it now I have not been able to improve, and it works better in my style of hive than any other I know.

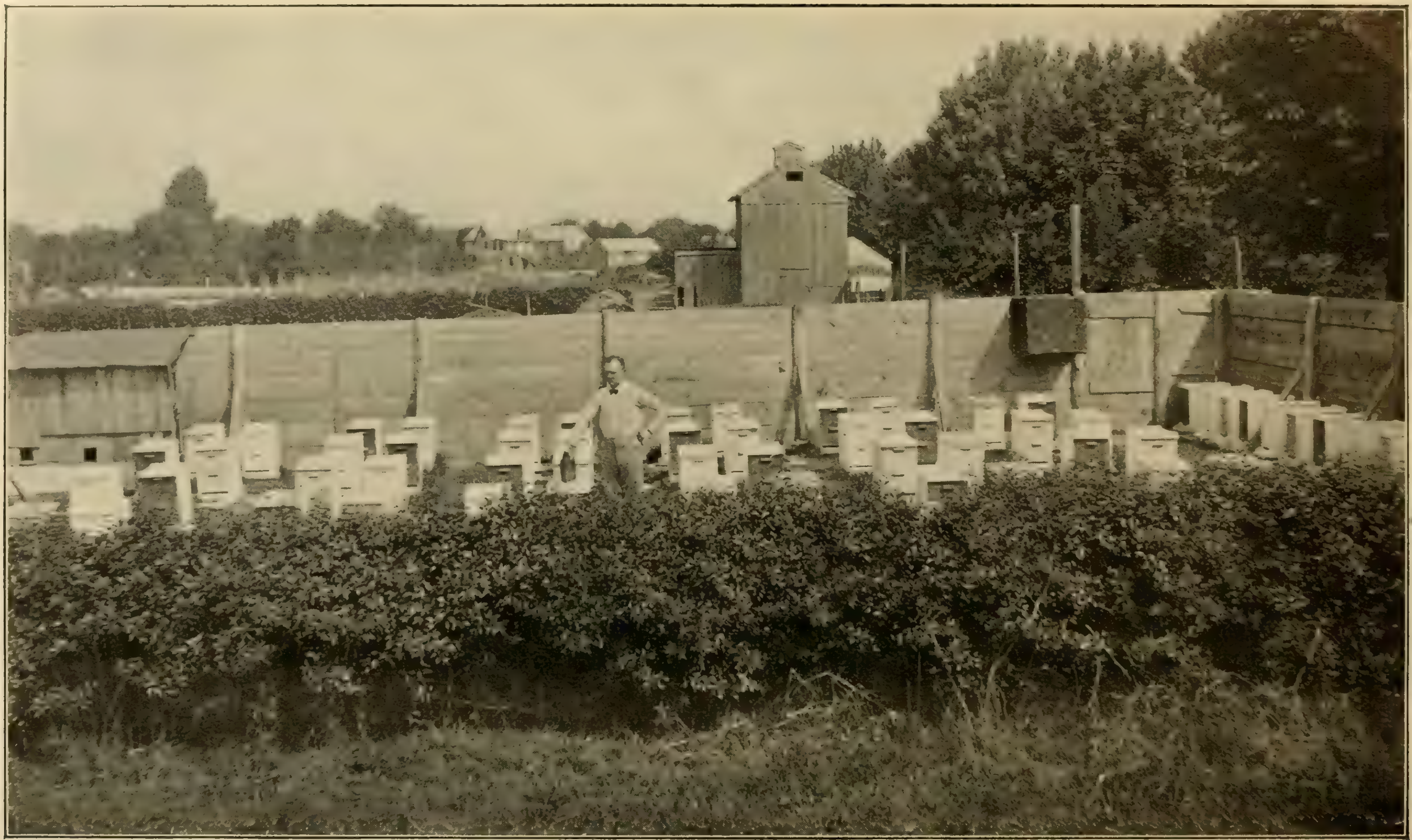
After the frame I use had come to your notice you thought well enough of it to manufacture and introduce it to the bee-keeping world, which you have done with remarkable success.

You have by this time modified the original Hoffman frame somewhat, so that Jacob H. Nellis made the remark in GLEANINGS once that you had modified some of the Hoffman out of it. However, I have no doubt that the frame as you make it now will suit best all round.

By the sample received I must say workmanship and material are a great credit to you. As there has been quite a discussion going on in GLEANINGS about the Hoffman, and in particular the V edge, I will in my next, if room is allowed me, say more about the V edge; also about division-boards and wedging, brace-combs, about spaced frames being interchangeable, how to handle spaced frames, etc.

Canajoharie, N. Y., Feb. 24.

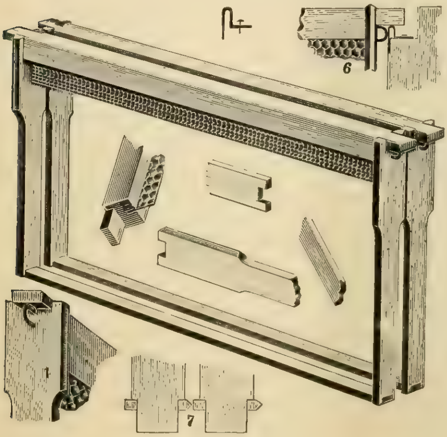
[It is true that we have modified the frame from the original Hoffman pattern adopted by the inventor; but conditions made this almost an absolute necessity. The original had widened-end top-bars like those shown in the lower diagram. These



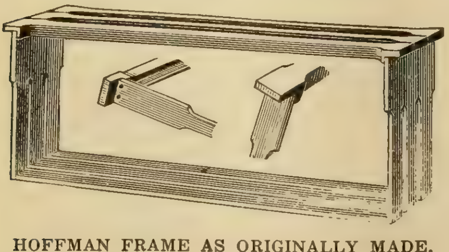
ONE OF THE OUT-APIARIES OF THE A. I. ROOT CO., AT SALEM, NEW JERSEY, FROM WHICH WE SUPPLY BEES FOR OUR EASTERN TRADE.
SEE EDITORIALS.

worked all right in connection with the widened ends in the Hoffman hive, which is a hive without a bee-space on top, but having the space under. On top of the frames is placed a quilt or cloth, which covers up the top-bars entirely. The frames rest in rabbets only ⅜ deep, or the thickness of the top-bar. This brings the top-bar flush with the top of the hive. When the quilt is laid on top, and the cover put in place, the widened ends of the top-bars are *entirely covered* so that the bees can not chink any propolis at the *ends* of the top-bars nor *between* them where they come in contact.

When we adopted the Hoffman frame nearly all hives made had a bee-space on top; and most modern hives sent out by the factories to-day are so constructed; nor are they provided with a quilt or cloth. After the hives had been sent out with Hoffman frames with widened top-bars it was soon discovered that, owing to the accessibility of bees to every part of them, the top-bars were propolized together, and against the end of the rabbet. This would never do. In order to secure the results obtained by Mr. Hoffman it was necessary to make the Hoffman end-bars the only points that would come in contact, and to make the projection on the frame so that there would be a bee-space all around it and the same resting on a tin rabbet. This, in effect, secured exactly the same thing Mr. Hoffman's original hive and frame did, and at the same time made no modification of the then existing hives necessary. The Hoffman frame, as it is adapted to the regular Langstroth or Dovetailed hive, can be handled in every way that Mr. Hoffman handles his in his specially constructed hive. If we had continued to make the Hoffman frame as we originally put it out, following the exact details of the frame as first made by the inventor, it would have been necessary to modify all existing hives in use. It can be readily seen that that would be impossible. It was, therefore, necessary to make a change in frame.



HOFFMAN FRAME AS NOW MADE.



HOFFMAN FRAME AS ORIGINALLY MADE.

In order that the reader may more fully understand the comparative differences, we show here first an illustration of the Hoffman frame as we are using it to-day, and, second, the original Hoffman with widened top-bars which we first adopted after the Hoffman pattern, but which we were compelled to abandon for reasons already given. —Ed.]

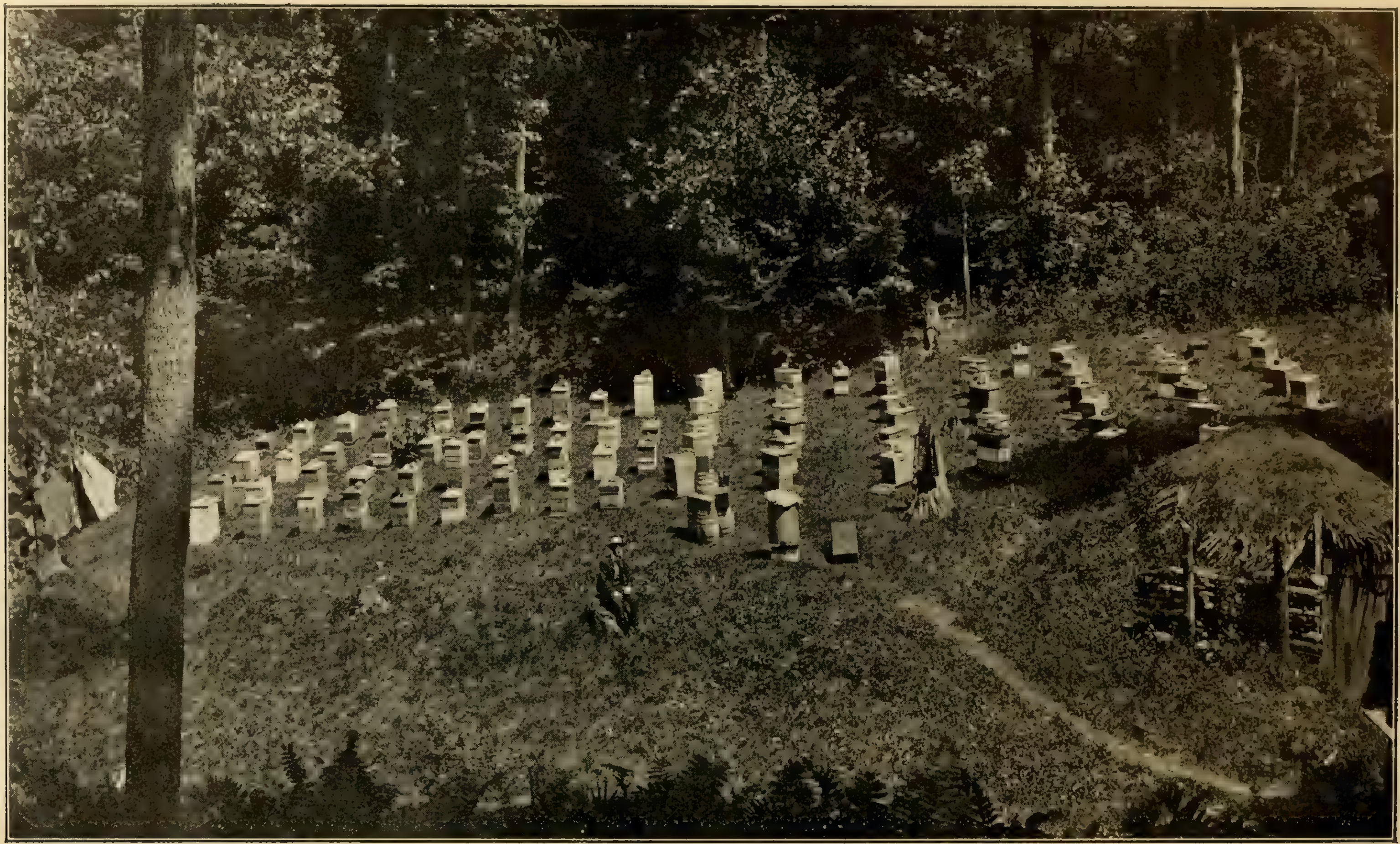
THE CONFUSION IN THE GRADING-RULES.

Which are Correct—those in the Review or in Gleanings?

BY WM. MUTH-RASMUSSEN.

Mr. Root:—Last year I wrote you about the difference in the Washington grading-rules, as printed in Gleanings and in the *Bee-keepers' Review*. The communication was printed in the October 1st issue, pages 941, 942. In your footnote you called for an explanation from those who had had any thing to do with the revision of the rules, but no explanation has been forthcoming. At the same time, I sent an exact copy of my article to the *Review*, but Mr. Hutchinson took no notice of it whatever. I am, therefore, no wiser than I was before I wrote you on that subject.

The bees have begun swarming here, and the honey season will soon be upon us. We shall then need the grading-rules again. As a general thing I have comparatively few sections which fit the rule for "Fancy," as given in Gleanings; but I have large numbers of *just as perfect* combs, lacking merely the sealing of the outside row of cells. These latter I have hitherto graded as No. 1; but if the rules in the *Review* are correct (and they are still standing unchanged, as last year), I have lost many dollars when selling by grades, as such sections might just as well have gone into the "Fancy" grade, and brought the corresponding price. If the rules in the *Review* are not correct, why are they not made so? As I said in my former article, when a bee-keeper takes both papers and reads the two different sets of rules, which paper shall he follow? Self-interest would say, "The *Review*," as the



FIRST PRIZE PICTURE OF APIARY. ERNEST W. FOX, HILLSBORO, WIS. SEE EDITORIALS.

rules there are easier, and favor the producer.

Now, there may, perhaps, be another way of getting at this matter. Let us hear from the large dealers in comb honey. Do they accept and pay for, as "Fancy," sections graded according to the rules as given in the *Review?* If they do, I shall certainly be the gainer by it. If they do not, I shall not be any worse off than before. But I have for many years worked to establish a reputation for conscientious grading; and if I can increase my income without injuring my reputation I do not see why I should deny myself that privilege.

Independence, Cal., April 12.

[I spent some little time in looking over back numbers of GLEANINGS, but failed to find the article or articles which criticise the Washington grading as now given in the *Bee-keepers' Review*, and urge a modification which we adopted some five or six years ago and continued at the head of our Honey Column. For the convenience of our readers we reproduce the grading as given in the *Review*, and also the grading that we have adopted. The latter we will style GLEANINGS grading, and the other the Washington grading.

WASHINGTON GRADING.

The following rules for grading honey were adopted by the North American Bee-keepers' Association, at the Washington meeting, and, so far as possible, quotations are made according to these rules:

FANCY.—All sections to be well filled; combs straight; of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark. That is, there will be "fancy white," "No. 1 dark," etc.

GLEANINGS GRADING.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled: the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy white," No. 1 dark," etc.

He will see that the GLEANINGS grading, if we may call it by that name, specifies a Fancy, A No. 1, Nos. 1, 2, and 3. The Washington grading names only Fancy and No. 1. Our A No. 1 provides for something a little finer and better than the ordinary No. 1, while our Fancy is strictly this and nothing else. As nearly as I can remember, the criticism of the Washington grading was that it did not provide for a lot of honey that was one grading higher than the Washington Fancy; that, furthermore, a strict interpretation of the Washington Fancy would allow a class of honey that was practically only No. 1. There were some producers at the time who were producing some tall sections behind fences, who were able to get nearly every cell filled next to the wood. It was these who demanded a grading for themselves. Perhaps it would have been better to leave the Washington grading as in was, and then have an "Extra Fancy." Since the grading-rules by the North American Bee-keepers' Association in convention were adopted, the science of better filling of sections has progressed somewhat, necessitating a higher grading. The grading-rules adopted by this journal are not hard and fast, and can be modified to fit existing conditions.—ED.]

THE FOLLY OF SENDING UNRIPE HONEY TO MARKET.

A Serious and Important Matter; How Some Bee-keepers are Killing the Goose that Lays the Golden Egg.

BY R. A. BURNETT.

I have just read the article by Mr. E. D. Townsend on the importance of having honey ripe when it is put upon the market. Last autumn we sold a barrel of honey to a man who would use about 500 lbs. per week. We had sampled one of the barrels of the lot, and found it to be well-ripened honey; but as the lot was from different producers, having been consigned to us by a dealer, the barrel which he got proved to be of a low quality in flavor, wholly from the standpoint of having been extracted when the honey was not cured sufficiently to give it flavor or prevent its separating, so that there was about half a gallon of water in the barrel, that had been exuded during the candying process. This caused the man to return the package and the so-called water in a can. We endeavored to satisfy him by offering to substitute another package for it, but he felt that he could not afford to risk it, and said he had great difficulty in getting honey of one producer whom he knew always had good honey. The result of it was, we lost a customer for honey, and the man who sent us this unripe honey missed the sale of several hundred pounds of his product.

It is our opinion (which we have voiced for some years) that unripe honey has had more to do with the curtailment of its use by people generally than any other one thing, if not more than all other causes put together; for when a person gets a coarse-grained flavorless extracted honey he does not like to throw it away nor return it to the vender, but keeps it around until everybody in the family tires of seeing honey, and gets out of the habit of using it, sometimes for years.

If we fail to give people a good article it will be time thrown away to try to convince them they should buy more of it. Producers of honey should be free from commercial selfishness to the extent that they should seek quality before quantity. We will venture the opinion that, if the honey to be gathered in 1905 be allowed to ripen in the hives before being offered for sale, the consumption of honey will be greatly enhanced; and that, if that is kept up without variation for the next five years, the amount consumed will be double what it has been in the past five years. It seems to us the remedy is very simple, from the fact that it lies wholly in the producer's hands.

In conclusion we will say this: Beginning with the crop of this season, any unripe honey that comes to us will not be offered for sale, but held subject to the owner's orders. It might be that a unanimous understanding to this effect among honey-dealers would be a most effective means of stopping the unwarrantable greed of the producer who endeavors to market a product that will bring him money at the expense of all intelligent and honorable producers.

Chicago, Ill., April 22.

[The writer of the above, Mr. R. A. Burnett, is the head of one of the largest commission houses in Chicago—one that makes a specialty of buying honey. What he has to say is only too true, as we know from an extended correspondence. There is no excuse at all for any bee-keeper who is able to produce a crop of honey for sending that honey in an unripe condition to market.

There are hundreds of other instances exactly like this given by Mr. Burnett. I remember in particular a case where a large commission house had bought a carload of honey of one of the most extensive producers in the United States. He bought by sample, and some of the packages were like the sample, and some were not. Well, the head of the commission house took a large buyer (who happened to be in evening dress to attend a party) to look at some of this fine honey. Both of them stood over the bung of a barrel of the honey, while the seller. with a hatchet, was leisurely knocking the bung out, when there was a loud pop and a blow like a safety-valve blowing off. Fermented honey shot all over both of the men, up against the ceiling, and all around the room. The seller was disgusted, and the buyer went off mad. What happened? The seller never bought any more honey from that bee-keeper, and the buyer never came into the store.

There have been some fearful jangles between bee-keepers and honey-buyers. The former are not dishonest but simply careless or ignorant, or both, and then complain of the difficulty of selling their honey. I know of some bee-keepers who grade their extracted honey so carefully that the buyer always knows without a sample what he is getting. Their crops are often disposed of, even before the bees gather them, and why? Because the buyer knows, without any peradventure, that the honey will be thick and ripe, and that the uncapping-knife will have passed over every inch of the comb before it is extracted.

It is a well-known fact that a strictly fancy article of comb honey always sells, and sells quickly. The same rule applies to a strictly fancy article of extracted honey providing it is sent to a market where the consumer is familiar with the source or flavor of it.

Mr. W. A. Selser, of Philadelphia, buys thousands of pounds of extracted honey for bottling purposes; but he will buy only a fancy, and only that honey (clover) with which his trade is familiar.

I wish our bee-keeping friends would read over Mr. Burnett's article very carefully, and then act accordingly.

But you say, "What are we going to do with the off grades?" Ship them to the manufacturer, i. e., the baker or confectioner; but do not blend them with a lot of good honey and spoil the whole.—Ed.]

PICKLED BROOD.

A Disease that Resembles it and yet is Like Foul Brood; Italians Suffer Less.

BY E. F. ATWATER.

The articles on pickled brood, in recent numbers of Gleanings, prompt me to tell of my experience with it.

In South Dakota, where hybrid bees were the rule, the Italians were almost immune, while blacks or hybrids were liable to be seriously weakened. The introduction of vigorous Italian queens stopped the disease in every case with which I am familiar—not that the Italians were entirely free from it, but seemed to suffer far less, and to clean out the cells containing the dead larvæ far more readily than the blacks or hybrids.

Some think it is a starvation disease; and, while it is usually less apparent in a good flow, yet I have known a strong new swarm of hybrids to be ruined, for honey prospects, by the disease. during a fair flow. The experience of Mr. Thomas Chantry, then of Meckling, S. D. (where he had at that time several hundred colonies), was that the introduction of Italian blood was the best remedy. I call on Mr. Chantry to give us the result of his extensive experience with pickle. Here in Idaho, with Italians, almost all of pure blood, I have seen considerable pickle, but no colony apparently seriously damaged.

As yet I have not found it necessary to treat the disease in any way. We also have another condition which is exceedingly puzzling. When a new swarm (or even occasionally an old colony) becomes queenless, and develops laying workers, or has a drone-laying queen, some of this drone brood, mostly in worker-cells, dies, and assumes an appearance varying from that of pickle to almost the appearance of foul brood. Some is slightly ropy, some is not (as in pickle), and in time it dries down to a hard scale on the lower cell walls, where it adheres quite strongly, much as in foul brood. I have usually melted such combs; but where such colonies have been robbed out, no foul brood has developed. I want to know if you, Mr. Editor, or some of your readers, can tell me if the above is a brood disease. So far as I remember, it has appeared in only two of my yards near Star, Ida., where there is some pickle, and rarely a case of genuine foul brood. We now have foul brood in several widely separated localities in Idaho, and it is spreading rapidly in at least one of our valleys, and I think all owing to the kindness of some bee-keepers who brought their bees from other States. However, we are not at all bitter toward them, nor has any one been treated as H. H. Hyde once suggested in GLEANINGS, his "bees burned and himself drummed out of the country."

Another subscriber of GLEANINGS will locate here soon, and probably favor us with another supply of foul brood, yet we all extend him the "glad hand."

I think that, if a bee-keeper in a foul-brood locality wishes to move to a better country, if he can not sell his entire outfit he should kill the bees, melt the combs, boil every thing, and bring his hives, wax, and outfit, buying bees at his destination.

Now please ask some of your Cuban readers to tell us exactly, in every detail, how to make a success producing *extracted* honey in a foul-brood locality, for that is just the knowledge that will soon be worth dollars to some of us here in Idaho as well as elsewhere.

Meridian, Ida., Jan. 13, 1905.

[We have had some samples of diseased brood sent us which, on microscopic examination, showed the presence of germs of both pickled and foul brood; but if foul brood were present at all it would make a condition requiring just as urgent and thorough treatment as if no pickled brood were complicated with it. It is barely possible you have had a combination of the two diseases, but that is improbable. We have examined hundreds of specimens of pickled brood, and have found that they vary somewhat in characteristics. Sometimes the dead matter will rope some, but never quite enough to reach the long stretch of the characteristic foul brood. The very fact that this pickled brood does not spread like foul brood goes to show that what you have is not that disease—*Bacillus alvei.*

The moving of bees from one locality to another, especially from a locality infected with foul brood into one free from it, should be most severely condemned. There ought to be a United States law putting a stop to any thing of this kind. Such a law would not necessarily prevent the importation of bees from one State to another, but it would require that bees before removal be inspected by some State inspector or other competent person, and that the locality for several miles around be pronounced free from the disease.

One of our corresponents, Harry Craven, will shortly answer in these columns just the question you ask regarding the handling of foul-broody colonies for honey.—ED.]

WHERE PURE ORANGE HONEY IS OBTAINED IN FLORIDA.

Some Characteristic Scenes.

BY W. W. CRIM.

Some of the bee-keepers who think there is no pure orange honey made should come to Manatee Co., Fla., the first of March, and stay just one month. They would surely be convinced that there is considerable honey in orange bloom. I believe there are several colonies of bees here that have furnished a surplus of 25 lbs. of pure orange honey, as pure as clover, alfalfa, or any other honey. If there is any thing for the bees to work on during orange bloom I have failed to find it. If the bees could be put in condition to do good work on the orange I do not doubt that 50 lbs. could be harvested. As the orange is the first bloom to work on, it finds the bees in poor condition to harvest a good crop. I do not know how this season compares with others, but surely there was a good flow this time. The man who thinks of coming here to keep bees for orange honey had better go slow. I came here for that purpose, and will go back to Indiana in June. All the honey here is too dark, except the orange, and that is not nearly as white as the samples generally called orange honey.

I send you some photos of Mr. Rood's bees just at the close of orange bloom, March 27. The first view represents the home apiary showing strength of three-story hives; about 50 hives in this yard.

The second view shows bees on and under the hives.

The third view is called Cedar Hammock yard, and has about 75 colonies.

The last view shows the way the little folks live in Florida. If you do not think there is lots of good exercise in climbing palmetto-trees, come down next orange season and try one. I have.

Palmetto, Fla.

[We note trellises overhead in Figs. 1 and 3 in the view shown, doubtless for the purpose of affording shade by means of a trailing vine of some some sort during the middle of the day. There are no shadows to indicate whether these trellises are ranged directly east and west so that the hives may be shaded from morning till night; but in the absence of any statement to the contrary we will assume this to be the fact, for this is the rule in Arizona, where an overhead shade of this kind is almost a matter of necessity.—ED.]

Conversations
With
Doolittle

DIAGNOSIS FROM THE OUTSIDE.

"Good morning, Mr. Doolittle."

"Good morning, Mr. Wolfe."

"I have come again for another conversation on the diagnosing, from the outside, of a bee-hive, so as to tell what is going on inside. But before asking further questions I wish to thank you for telling us what you did in this matter in the May 1st GLEANINGS."

"That is all right, Mr. Wolfe, and I shall be just as pleased to serve you further, so far as I am able, as I was to tell you what I could before, so go ahead. What do you wish this morning."

"The first thing I wish to know about is, what it means when bees cluster all over the front of the hive, and hang down on and under the alighting-board?"

"It generally means one of two things, and quite often both of them—first, that it is very hot; second, that the colony has become numerous in bees."

"Why do you put the *hot* first?"

"Because, when it is very hot even weak colonies will cluster on the outside of the hive—many times those which do not have more than a quart or two of bees. I have seen the bees in a comparatively weak nucleus come out on the outside of the hive in nearly proportionate numbers with full colonies on days when the mercury went from 90 to 95 degrees in the shade?"

"That is something new to me. I did not suppose such colonies would hang out at all. I have read that such hanging out was a sure sign that the bees were going to swarm, and so I expected that would be the answer you would give to my question."

"Clustering out in hot weather has very little to do with the matter of swarming; for with us, in this locality, far more clustering-out is done out of the swarming season than in that season. In hot weather, during the latter part of July and the first half of August, we often have the hives 'black' with bees for days and nights at a time, and that at times when we know the bees will not swarm, because there is an absolute honey dearth—so much so that, should we try to open hives, we should have robber bees about in short order. All know that bees do not swarm when there is such a honey dearth on."

"But do you not think that it is a sign of

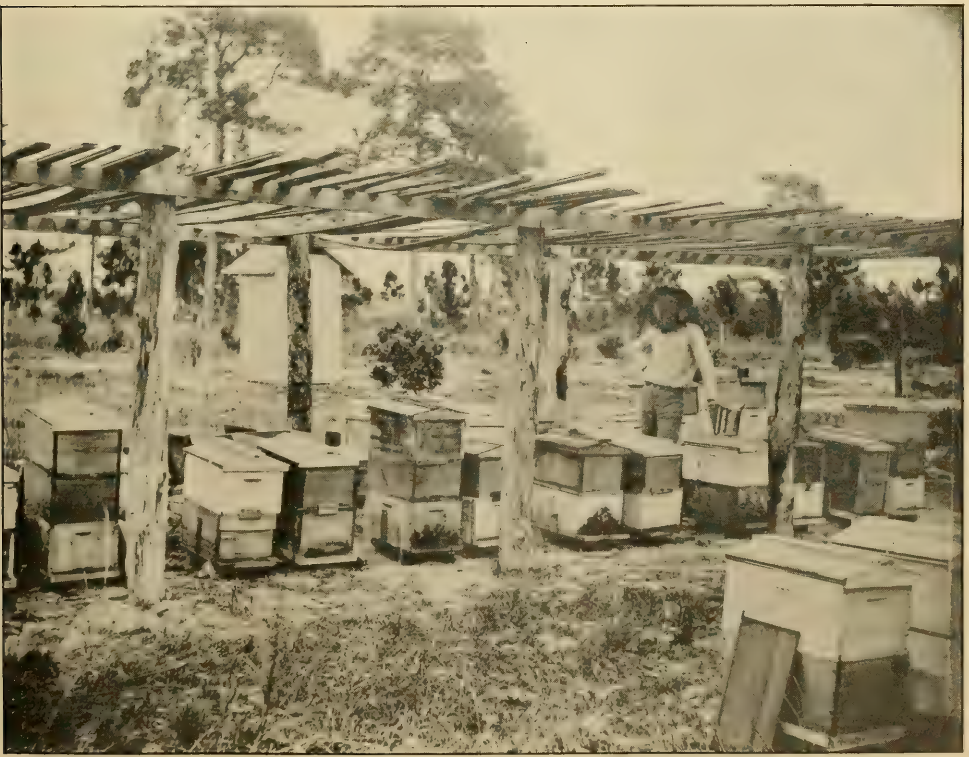


FIG. 1.—ROOD'S HOME APIARY SHOWING STRENGTH OF THE THREE-STORY HIVES, FLORIDA.

swarming when bees cluster out in moderately warm weather, a little before and durring the swarming season?"

"Such clustering-out at that season of the year, when honey is coming in from the fields, tells us that the colony is populous enough to swarm, and that it may do so; but even when we conclude that way, some colony which has not clustered out on the outside of the hive may be the first one to swarm."

"Then is there no way of telling from the outside of the hive just when a colony will cast its prime swarm?"

"Not that I know of; but the *Bee-keepers' Review* told us a year or so ago that some bee-keeper had told the editor of that paper a sure way of telling, which was so simple that he (the editor) wondered no one had thought of it before; but he was not allowed to divulge what it was. He thought that, if enough of the readers of the *Review* would pledge $1.00 each to reach up into the hundreds of dollars, the one having this knowledge would let him print the matter, thus giving it to the public. But as I have not heard a word in the matter for nearly a year now, I suppose that this great boon to bee-keepers is to be locked up in the grave when the bee-keeper and Mr. Hutchinson pass to the beyond."

"Don't you suppose that bee-keeper ever gained any knowledge from reading what others have freely given to the public?"

"I could not say as to that, and, even if he had, he has a right to keep the knowledge he has to himself, if he feels so disposed."

"I suppose so; and as he seems likely so to keep it, how am I to tell just when the prime swarm will issue?"

"If, on opening the hive, we find eggs in queen-cells, we are quite sure such a colony will swarm in from six to nine days, providing the weather and honey-flow remain good, for by that time some or all of those queen-cells will be sealed; and on the sealing of the first queen-cell comes the prime swarm. If we find larvæ in the queen-cells the swarm will come from one to six days later, just in accord with the age of the larvæ in these queen-cells. And allow me to say that I find such eggs and larvæ in queen-cells nearly or quite as often in colonies which have not clustered on the outside of the hive as in those which have. This is not outside diagnosis, I am well aware, but it is far better than not knowing any thing for certain in the matter, as was the case with our fathers."

"Yes, that is right. But another thing which I wish to know is, how can I tell, after any colony is through swarming, whether the young queen has become fertile and laying in the hive? Can this be told from the outside?"

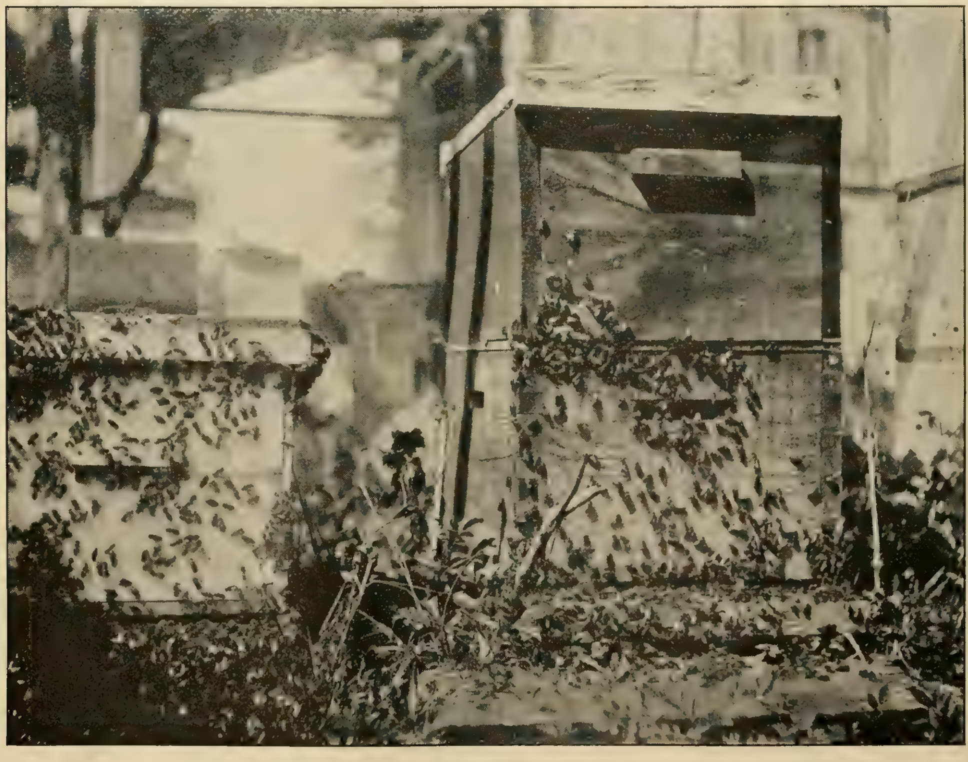


FIG. 2.—BEES CRAWLING AROUND THE OUTSIDE OF THE HIVES.

"Yes, or very nearly so. After the prime swarm has issued, it takes from 17 to 25 days before the young queen can emerge from her cell, take her wedding-flight, and commence to lay. There are cases where a less time has been known, and also where a greater time is taken; but 99 out of every 100 queens that take the place of the mother queen, which went out with the swarm, will get to laying between the days I have given; for, nine days after the swarm issued, there will be brood in the larval state in the combs after the mother queen leaves, and there can be no more brood in that state till it comes from the eggs the young queen lays. The bees seem to realize this, and so carry in very little pollen after ten days have elapsed from the time the old queen left; but as soon as the little larvæ from the eggs of the young queen begin to hatch, the bees go to carrying pollen with a will, especially quite early in the morning. Whenever you see pollen going thus early in the day into hives having cast a swarm from 17 to 25 days previous, you may be quite safe in saying *that* colony has a young laying queen; and if, in addition to this pollen, you find the bees at work with a 'vim' in the supers, you may rest assured that that colony has a laying queen all right."

"That looks reasonable."

"And I wish to say further that, if you do not see pollen thus going in, and do not see any work going on in the supers, or very slowly, while the bees about the entrance of the hive seem listless, after from 25 to 28 days have passed from the issuing of the prime swarm, you will, without doubt, find that colony queenless, and you should attend to it at once, by giving it a frame of brood in all stages, else you will be likely to lose it. From my own experience, and the numerous letters I receive on this subject, I am led to believe that hundreds and thousands of colonies are lost every year in the United States by their failing to get laying queens again after having swarmed."

"Will the frame of brood insure them a queen?"

"Not always, nor generally in time for them to become good colonies for winter; but it *will tell* whether they have a queen or not by their starting queen-cells on this brood if they are queenless. Look at this frame of brood three days after giving it; and, if queen-cells are started, procure a queen for them from some source, or give them a frame of brood from some other colony every week till a young queen from one of the cells built becomes fertile. But the queen is better if given from elsewhere, for queens reared under the circumstances such a queen would be reared are not as good queens as you should have in your apiary."

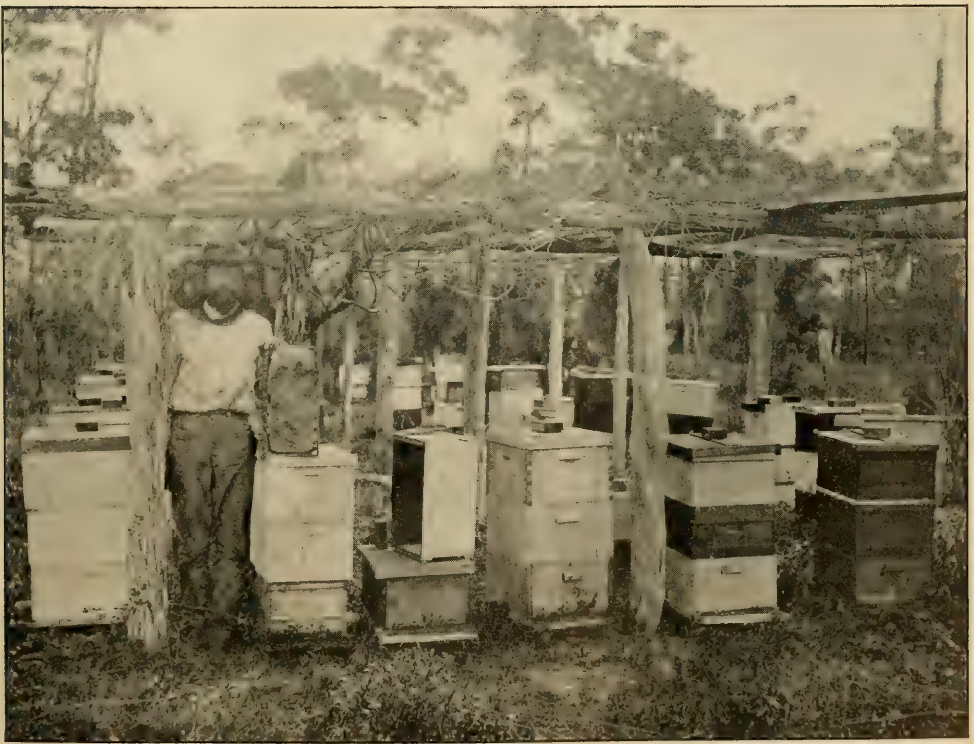


FIG. 3.—ROOD'S CEDAR HAMMOCK YARD, PALMETTO, FLORIDA.

"I find nearly every spring that some of my colonies come out queenless, evidently having gone into winter quarters that way. Is there any way I can tell whether colonies are queenless in the fall without opening the hive and seeing the queen? I have tried thus looking for them, but the late fall is a hard time in which to find a queen, as she is not breeding then, and the bees thickly clustered together."

"I know it is hard work to find a queen late in the fall, and for this reason I never hunt for them unless it is absolutely necessary to find one for some reason. But it is not necessary to hunt for the queen to tell whether a colony has a queen or not, as a little smoke on any *warm* evening will tell you whether a colony is queenless or not at that time of the year. If you have a colony you mistrust is queenless, go to it between the time of sunset and dark, or what would be called early twilight, and puff in at the entrance a little smoke two or three times. If you hear a loud mournful roaring in the hive for some length of time after this smoke has been blown in, you may know *that* colony is queenless. By trying this plan on a colony having a queen, and one which has not, you will ever afterward be able to tell at once in this matter."

Heads of Grain from different fields

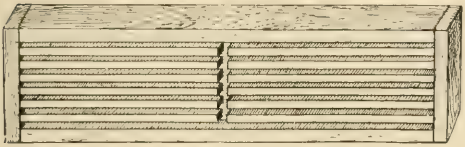
AN OUTDOOR ATMOSPHERIC FEEDER MAKING USE OF A MASON JAR.

I am sending you an atmospheric bee-feeder of my own construction, which I think should "take the cake." Its construction will be clear from the illustration. It is designed for an outdoor feeder, but can also be used in the upper story of a hive just as well, and this is the way to use it:

Fill a two-quart Mason jar with honey and water, half and half. Invert the feeder and lay it on top of the jar. Now, holding the jar in one hand and the feeder with the other, make a dextrous motion to invert the two at once so as not to spill any feed, and set it in a level place, say on top of a hive or on a box previously prepared for it. It works on the atmospheric principle—that is to say, the feed flows down out of the jar as fast as the bees take it out of the grooves

FIG. 4.—THE WAY THE LITTLE FOLKS LIVE IN FLORIDA.

sufficient to admit air. Don't think that this feeder needs an extra flange around it to prevent overflow. Experience shows that, if perfectly level, the feed will stand so as to fill the grooves about two-thirds full when unmolested; but when the bees get after it they will never allow it to reach the ends of the board. W. T. CARY.



Wakenda, Mo., April 10.

[This feeder is the same that we used many years ago in our own yards, and illustrated in the early editions of our A B C of Bee Culture under the head of "Water." We used, however, a solid grooved board or block. The feeder is an excellent one, even if it is old. We used it all last summer (on a larger scale) for our outdoor feeding.—ED.]

ZINC FOR RECORD-CARDS; ITALIANS AS CELL-BUILDERS.

My queen-registering cards are ahead of any thing else I have ever tried. They are made of pieces of zinc 2½ long by 2¼ wide, with a hole punched through the top so that they may be hung on the north side of each hive by a small nail. It is an old idea, but a nearly perfect one.

Write with a lead-pencil; and when the card is full take a scouring-pan to the bee-yard and go from one hive to the other and clean each zinc, after which rewrite the last item at the top.

It is a well-known fact that black bees or hybrids which have their queen taken away will build much finer queen-cells than Italians under the same circumstances.

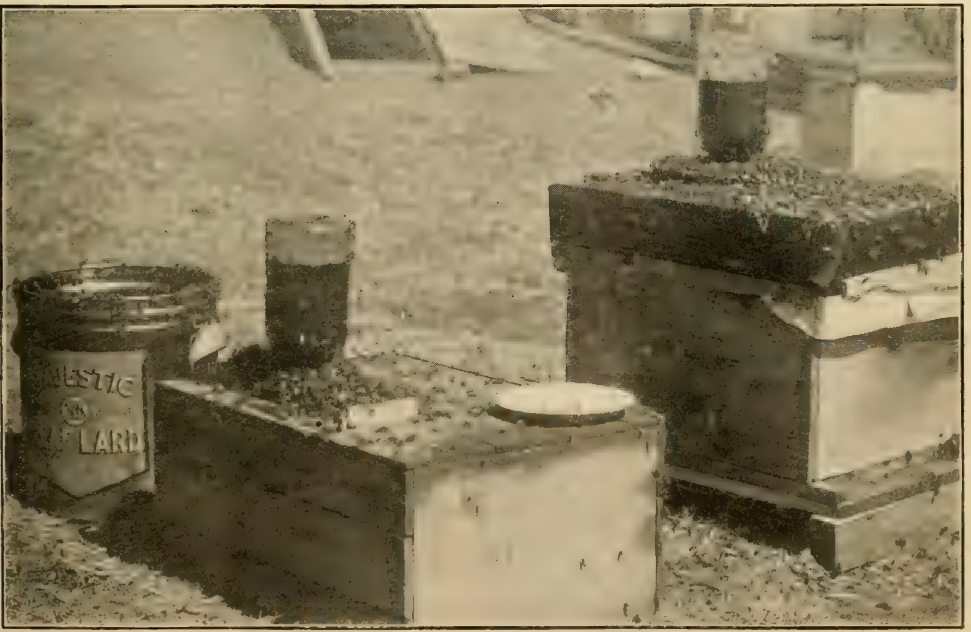
Will Italian bees build just as good queen-cells above a queen-excluding honey-board, with a queen laying in hive below, as would black bees under the same conditions?

South Bend, Ind. C. A. BUNCH.

[Just as good queen-cells will be built above perforated zinc, with a laying queen below, as under other conditions, providing the cells are *once started*. Sometimes bees will not start cups or cells above. Black bees or hybrids may build a few more cells than Italians; but the difference, so far as I remember, is not great. Eastern races, however, will far excel either Italians or blacks.—ED.]

BEE PASTURAGE FOR SALE; HOW COULD THE BEES BE KEPT FROM TRESPASSING?

On page 314 Mr. Murphy suggests the renting or selling of bee pasturage by public sale, to which you point out the difficulty arising from the disposition to be made of the money. This is not the point that troubles me. I am partly of Henry George's views of land, and wholly so as regards the nectar of flowers. Like the fish in the stream and the game in the woods, the nectar is the heritage of the people. The land-



THE GROOVED BOARD AND MASON JAR FOR OUTDOOR FEEDING.

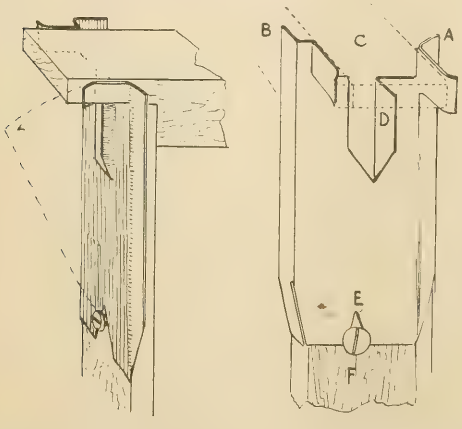
owner can do nothing to produce or prevent it except as he raises crops that are honey-bearing or otherwise; and a large share comes from the wild plants by the roadside. Then the rental should go into the county or township treasury, or, perhaps, to the road district or school fund. But what troubles me is, how the man will get what he has bought, or keep his bees from trespassing. If he buys three miles square, and is allowed to set his bees in any place on the territory, he can get all the honey on six miles square if he has sufficient bees to do it; and the man buying the territory adjoining would be robbed of part of his right, for it becomes personal property after he buys of the community. J. H. HAUGHAWOUT.

Fairmount, Neb.

[I do not see but you would have to buy up the territory for six miles of flight; or, to put it more exactly, the bee-keeper ought to be able to control a radius of two miles of flight to every yard. Well, he can't do it, that's all, unless the territory were sold at a very low figure per square mile.—ED.]

A REMOVABLE METAL FRAME-SPACER.

I mail you a sample of my metal frame-spacer. It is impossible to put it on wrong, as wide wooden end-bars are sometimes nailed up in all sorts of ways. They could probably be made for one-fourth cent each, as it may be stamped from sheet metal, instead of making it the same as the sample—perhaps as thin as ordinary tin.



Bairdstown, O. A. J. OBERLITNER.

[The metal spacer shown above is quite similar to a device we illustrated some time ago. They will be quite expensive as compared with the ordinary Hoffman frame; and while, to a certain extent, removable for the purpose of uncapping, I question whether they would give the satisfaction of the ordinary wooden widened end.—ED.]

PUTTING UP EXTRACTED HONEY.

We have invariably found it best to use large tanks because of the proneness of honey to "work." Despite the most favorable circumstances, honey will foam when agitated, that being the worst period for several days after extracting. Large tanks obviate this trouble partially. Then they give a uniform color, flavor, and ripeness, which are necessary when selling by sample.

T. WORTHINGTON.

Leota, Miss., April 11.

[What you have to say refers, I should judge, to your own locality or to any honey that has a tendency to "work" or ferment. Still, it is an advantage in any locality to use a large tank in order that the honey may all have the same blending, quality, flavor, and body.—ED.]

STRAINING AND SKIMMING EXTRACTED HONEY; HOW TO RETAIN THE NATURAL FLAVOR.

On p. 364 I see by your footnote to E. D. Townsend's article on putting up extracted honey that you have called for the opinions of others on the care or proper shape to have honey fixed up to fill the bill, so I submit my plan, which will, perhaps, help some to give the public honey which has not lost its flavor by being exposed unnecessarily to the air, and which has no scum on the tops of the cans. I store my honey in large oak barrels that have been waxed inside and painted on the outside. All the barrels stand on a low counter, and each barrel has a large top in it, and all have the top end taken out. I spread a cheese-cloth over the barrel, and drive a hoop over this to hold the cheese-cloth on. I then spread another cheese-cloth over it, which can be lifted off, washed, shaken, and spread on again. As soon as the first barrel is nearly full I take off the cheese-cloth and draw enough honey from the bottom of the second barrel to fill up the first one. I then put about six newspapers over, and drive the hoops over these tight so as to keep the honey from losing any of its flavor. As the honey has been run into the barrels warm, and sealed airtight with papers, it retains its flavor and also keeps longer from granulating.

After these barrels of honey have been sealed over this way for about twelve days I drive up the hoops, remove the papers, and skim off the little thin scum and put the newspapers over again and drive the iron hoop over these so as to keep the honey airtight. When I run the honey out of these barrels into tins I seal them at once so as to retain the flavor of the honey.

WM. MCEVOY.

Woodburn, Ont., April 10.

[I will explain to our newer readers that Mr. McEvoy is the official foul-brood inspector for Ontario, Canada; he is also one of the leading bee-keepers of that province. He does not write for bee-journals very often; but when he does he invariably has something worth reading. The suggestion he has given above is excellent, so that the beginner or the veteran may well profit by it.—ED.]

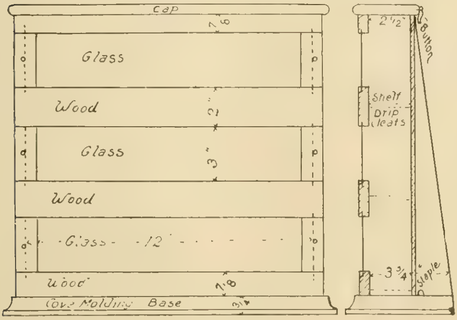
IMPROVEMENT ON BEE-ESCAPE BOARD.

I send you some sketches of some kinks I have used to save trouble and to sell honey.

In taking off honey with Porter's bee-escapes I have two short strips nailed on the upper side of the board, reaching from the side rim of the board to the hole in the escape. These guide the bees to the hole and make them leave the super much easier.

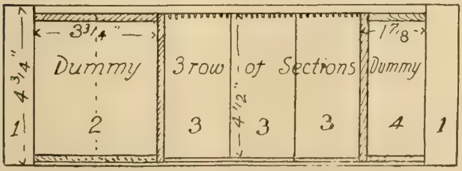
SMALL SHOW-CASE FOR COMB HONEY.

Last fall when marketing my honey I gave each merchant who took five or more 24-lb. cases one show-case to display 9 sections on his counter. They were stained walnut, and varnished, and showed the white comb honey finely. The front of each show-case was arranged with grooved strips, 3-inch glass, and end-blocks, just like a shipping-case, and the honey rested on shelves with paper and drip-cleats. I show dimensions above for 4¼ sections. They cost about 25 cts. complete.



DUMMIES FOR THE SUPERS WHEN IT IS DESIRABLE TO GET A FEW UNFINISHED SECTIONS FILLED OUT.

Last fall, when nearing the close of the honey-flow, in order to have as few unfinished sections as possible I made two sizes of dummies—little boxes—the length of the inside of the super, and 4½ inches wide. One size was 3¾ inches deep, and the other 1⅞ deep. These I placed on their sides with the open part of the boxes next to the sides of the super. The largest size occupied the space of two rows of sections, and the smaller the space of one row. By their use, putting in two small sizes, one of each size, or two of the larger size, I could place four, three, or two rows of partly filled sections in the center of the super over the brood-nest where they would be more likely to be filled out.

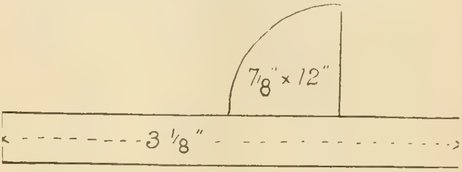


By adopting this plan my proportion of unfinished sections was much less than before. These dummies are easily made out of scraps of thin boards, and will give lots of satisfaction. The bees can not get in behind the dummies, but have access only to the sections.

DEVICE FOR NARROWING ENTRANCES IN WINTER.

I use entrances ⅞ for summer. In the fall I nail strips of ⅞-inch quarter-round molding as long as the width of the hive inside on to little pieces of lath, as shown above, and slip these in the entrances for winter. This keeps the bees warmer, prevents robbing, and prevents clogging up the bottom-boards as easily as they would were they turned over with the ⅜ cleats uppermost for winter.

Stamford, Neb. D. R. WAGGONER.



[Your suggestions are all good, friend W. That arrangement which directs the bees toward the bee-escapes may have a good deal of merit in it. It has struck me that it would be advisable, perhaps, to carry the same idea a little further—run a strip of wood from each corner of the escape-board clear up to the escape itself. This would divide the board into four pie-shaped inclosures, with the nose of the "pie" running clear to the escape. The suggestion is respectfully referred to R. and E. C. Porter, the inventors of the bee-escape, who have experimented with this particular escape in a hundred different ways; and if they say the suggestion is all right the Root Co. will proceed to get out these escape-boards with the pie-shaped divisions mentioned.

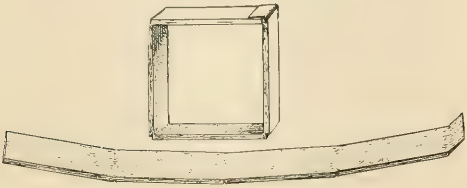
The show-case for displaying honey is a good one, and I am not sure but the manufacturers ought to list it in their catalogs. It would be very cheap, and make a fine display in show-windows and on retail counters.

Dummies in comb-honey supers — I believe this idea has been suggested before; but I see no reason why, at the close of the season, or whenever the season is light, these dummies could not be employed to excellent advantage. A No. 1 section will bring, perhaps, twice as much money as an unfinished one; and if the intelligent use of dummies at certain seasons of the year will double the money at the tail end of the crop, as stated by our correspondent, we may well give it a test.

The entrance-contractor is a good one, although something quite similar has been suggested before—I think by our friend E. F. Atwater, of Idaho.—ED.]

PASTEBOARD AS A MATERIAL FOR SECTIONS.

In response to your request I am sending you a sample of my pasteboard section unfolded, and also one formed, and filled with honey. The board that I used last year was too light, and I should prefer to use that as heavy as No. 15 or 20, which is 15 or 20 sheets to the bundle. The sheets are 26× 38, making 35 plain 1½-inch sections; then 20 sheets to the bundle will make 700 sections at a cost (for material) of $1.75. Strawboard is quoted at $1.75 per bundle, or $42.50 per ton (50 lbs. to the bundle). I have been told that strawboard can be bought for $27.00 per ton in car lots, making it less than 75 cents per bundle by the car. The cost of material depends, therefore, upon the quantity you buy.



Those that I used last year cost about one cent each; but this cost was mostly for changing the machinery for cutting. The making can be done very cheaply, but I can give no definite figures. Those that I have prepared for this year have white paper pasted on the outside. CLYDE CADY.

Grass Lake, Mich., March 22.

[I saw a shipping-case full of these pasteboard sections containing honey, at the Michigan State convention at Grand Rapids, and was surprised at the result. Some of the edges were gnawed, but Mr. Cady stated that this happened only when they were left on while the bees had nothing to do. Although the pasteboard may not make as firm a section as those now used, yet it is possible that bee-keepers may have to use it on account of the scarcity of basswood. Attempts have been made to obtain other kinds of wood for sections, but none have been found as yet, white or dark, that will bend without breaking.—H. H. R.]

LAYING WORKERS.

Have you ever seen laying workers in the act of laying?

This summer I put a frame of brood containing two sealed queen-cells in an observatory hive. With regret I saw that neither cell hatched; so, indifferently, I let this nucleus remain unnoticed for some time. Later I was surprised to find eggs in some cells. This became interesting, so I watched every day. Soon I saw five or six eggs in a cell. One day I saw the laying worker in the act of depositing eggs. The next day I saw two side by side in the same occupation. Then I watched for any extraordinary attention which they might receive from the others, but saw none. They mingled with the common bees unnoticed, and would soon be lost to view. I find no difference in their appearance from the others. C. J. THIES.

Pepin, Wis.

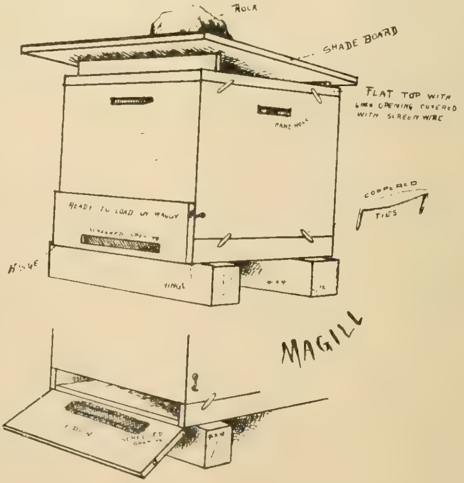
[Dr. E. F. Phillips, of the University of Pennsylvania, who has spent hours, days, and weeks watching fertile workers, was requested to answer these questions, which he has done.]

Last summer I caught five workers in the act of laying eggs in cells on one side of one frame within about three-quarters of an hour. While in the act of laying, these workers received almost as much attention from the other workers as does a queen under similar circumstances; but within a minute or two they cease to follow the fertile worker. It would seem that, during oviposition, and for a short time after, the workers are attracted to the fertile worker by some odor, or in some other way, just as they are attracted to the queen. All the workers which were observed laying at this time and at other times were almost hairless, and were probably old.

E. F. PHILLIPS.

COMBINED ALIGHTING-BOARD AND ENTRANCE-CLOSER.

I send a sketch of an entrance-contractor that is adjustable, always held against the top of the entrance. The wooden part should be made in accordance with the size of the entrance. F. B. MAGILL.



Piqua, Ohio.

[This idea is good. The only objection I see is that the hinges would be too expensive, and the screws would be liable to work loose under the influence of the weather. It would have the merit that it could be folded up out of the way easily to let the lawn-mower run by; and whenever one is ready to move bees, or robbing may have got started, the entrance could be closed in a few seconds.—ED.]

QUEENS IN THE AIR BECOMING ACQUAINTED WITH STRANGE BEES AND FOLLOWING THEM HOME.

Let me help you explain why W. G. Hutchinson's queen returned—see page 371. Something over a year ago I wrote you about some observations of ours—myself and son—to the effect that bees will, when first made queenless, fly the country over searching for their queen; and should they find one seeking a home the two will undoubtedly become friendly in the open air, and the bees pilot or escort this queen to their home, and she will be accepted. Now, my theory is that, when those bees missed W. G. H.'s queen, they supposed her to be lost in the field, and they, being familiar with the field, proceeded to hunt her and pilot her home.

You or any one else can easily prove this theory, or whatever you may call it, and I feel quite sure that it will help to solve many of our disappearances of queens, and also explain why some, apparently hopelessly queenless, refuse to accept what we offer them in the way of a queen.

FROZEN BEES.

Now, Mr. Editor, allow me to say a word to you about bees freezing and then starving. Some five or six years ago, when soft maples were in bloom the bees were just rolling in pollen in the forenoon; but in the afternoon a hailstorm passed near us, and a chilly wind caught many of my bees out. The yard near the hives was thick with bees with great loads of pollen on their legs. This I had no opportunity of observing until the next day. My boys and I picked up several, and carried them into the house, when, lo and behold! they revived and were as lively as any. We afterward picked up more than a quart, and nearly every one revived. They were given to a weak colony after a day or two, and accepted all right.

About two years ago a similar occurrence took place, except that a snowstorm caught the bees out, very many took refuge on the side of trees opposite the snow, one side of the tree being white with snow and the other pretty full of bees with many in the snow on the ground. They remained out over night. The next day was quite warm, and I know that many of those on the trees got safely home, and I think nearly all of them; but those on the ground, especially those wet with snow, were "all in," while some, no doubt, from the ground reached home.

J. WARREN ARTHUR.

Springfield, Ohio, April 10.

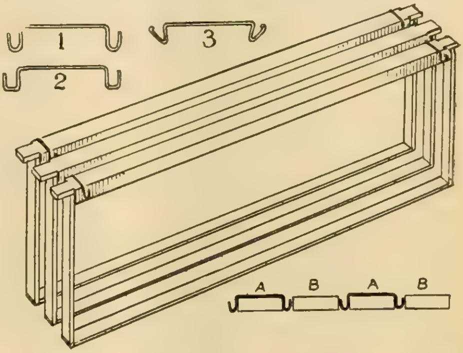
[I really do not see how you are going to prove your theory so easily as you suggest. You may see the bees flying around in the air, but how are you going to *prove* that they are hunting around after a queen? and even if you should see a queen coming along with three or four or a dozen bees, how are you going to *prove* that these are coaxing her into their hive?

Regarding the frozen bees, I think you would have found they would have revived if they had been kept in that condition for several days, though perhaps they would have had less vitality afterward.—ED.]

A WIRE FRAME-SPACER.

I send you a sample of my frame-spacer. It can be made of round steel wire or flat steel, about ⅛ wide. I made eight for an eight-frame hive, and one extra to send you, all from baling wire. Hang it over the top-bars, one on each end of every other frame; or one to a frame, hung one on one end and the next on the opposite end of the next frame, etc. In fact, it may be used a number of ways. These are better than Hoffman spacers, better than staples or nails, for they can easily be removed for extracting, and as easily and quickly put on. They don't give the bees a chance to propolize the frames a particle; can be easily taken off so as to allow the frames to be crowded together if necessary, without taking out the division-board. Finally, they are cheap. W. H. LEWIS.

New Westminster, B. C.



[These wire spacers are very simple and cheap, but it would be difficult to hold them in place in shoving the frames in and out of the brood-nest. It would not be practicable to put spacers on every *other* frame, but it might do to use one spacer on one end of each frame provided you could make them hold their place.—ED.]

USE OF BURLAP; IN-BREEDING, ETC.

Would it be best to put clean burlap under the cover next to the brood-frames?

I do not wish much increase, so how can I best prevent swarming and save time in the busy season?

As this is a damp climate would it be likely to help matters to renew brood foundation every four or five years? If so, how would you do it?

What is meant by full sheets of foundation in supers? T. MORRIS.

Rainier, Oregon.

[With the ordinary modern hives I would not use burlap nor any thing else under the cover. By "modern hives" I mean those that have a cover that is flat on the under side, and bee-spaced about 5/16 inch from the frames beneath.

To prevent swarming we would respectfully recommend the shake or brushed plan, the Sibbald plan, as recently given in these columns, or the one recommended by Mr. E. W. Alexander on p. 425. Without knowing more of the conditions we could not advise you as to which one would suit you best.

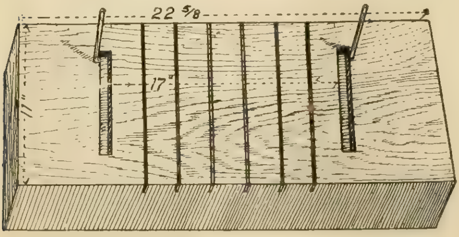
A damp climate can have no effect on the combs or foundation. It is bad economy to melt up good combs and put foundation in their place every four or five years.

By "full sheets" is meant those that fill out the frame from end-bar to end-bar, and from top-bar to within ¼ inch of the bottom-bar. By "starters" we mean narrow strips of foundation reaching the inside length of the top-bar on the under side, and anywhere from ½ to 2 or 3 in. wide.—Ed.]

SOME IDEAS FOR SIMPLIFYING TRANSFERRING

A TRANSFERRING-BOARD.

I send you a model of my transferring-board. When the cross-cuts, one inch apart, are filled with wires or strings the board is loaded for business. The frame is placed on the board with spacers in the insets and the pin at each upper corner comes just under the projection of the top-bar. A small cleat would do just as well to prevent the frame from sliding to you when pulling up the string or wire. I fasten these strings to tacks placed on top of the top-bar in the upper corner of the same, handy to put in and also to take out when the comb has been made fast by the bees. Cut the combs to fit the frames as suits you best. Apply the wire or string that lies just where you want it; fill up where you have used them out, and continue. There is no dropping-out of combs or pieces, no sliding of strings or wires under frames, and scraping off innocent heads—no scraping off fat honey-caps. If caps are too fat they should be shaved down or the chunk of honey not framed, but fed in some other way if needed. If wires are used, and they seem kinky, just put a small nail at each end of each cut, and snub the wires lightly so they will stay until they are wanted.



This idea may not be new to all, but is to me, and is my own notion, and helps out greatly. It can also be turned over and fixed for wiring foundation into frames.

Why not make some shallow trays to receive combs and wiring-board in transferring, and line them with paroid or something similar, and have one larger and heavier to contain the box hive while you are abusing it? These would favor a complete and speedy clean-up, and perhaps less robbing. Honey sometimes flows freely in operating, with us, and these trays could easily be washed, or licked up by the bees as might seem best. I hope these ideas may be of use to you and my fellow bee-keepers.

Richard Simmons.

Sylvania, Pa., April 4, 1905.

[Generally speaking it is not advisable to transfer small pieces of comb unless they contain brood. The line of union results afterward in more or less drone-cells, irregular cells, and the comb will always have a patchy appearance. While looks count for nothing, yet the comb capacity is liable to be affected for the reason that there will probably be holes and irregular margins where the two pieces of comb are united. Unless there is brood in the combs I would transfer into standard frames none that were not large enough to fill the entire frame, or large enough to fill half of one so that only two pieces would be required. If these were fitted snug, no strings, wires, or strips of wood would be needed. Even where small pieces of brood have to be used, the combs containing them should be cut out after the brood is hatched, and a sheet of foundation inserted in its stead. It is a bad practice to use any thing in a yard but perfect all-worker combs.

The device above shown for inserting wires or strings where such must be used is very good. I think something similar has been suggested before.

Shallow transferring-trays, especially if there is very much honey in the combs, are almost a matter of necessity.—Ed.]

THE INVESTIGATION OF THE STATE OF BEES WHEN FROZEN.

I am pleased to note that you intend to investigate further the matter of freezing, page 354. There are two important points which I think of, yet to be determined.

1. How long can bees remain in a frozen condition without noticeable injury?

2. How much cold can they stand? for I suppose the limit would be found somewhere, and we ought to know whether such limit is at all in reach of climatic conditions. This point might be ascertained by using liquid air instead of ice for experiments.

Referring to pages 303 and 353, let me say that I do not know whether Mr. Abbott and I are of the same opinion or not. His statements as quoted in Gleanings are not explicit enough for me to be sure that I understand him. We may notice that both the editor and Dr. Miller qualify their statements in regard to his theory in much the same way. One difficulty is that he starts with the hypothesis that the bees in question are dead. Now, if he is talking about dead bees it does not matter much whether they came to their death by freezing or starving. But when the bees are alive, capable of enjoying good health, and of doing a fairly good summer's work, and yet seem to be dead just because they are frozen at a temperature of zero or thereabout, it is important to know that they are alive, especially since they require assistance to remain so. WM. A. STEWART.

Elkin, Pa.

[As, perhaps, Mr. Abbott's position has not been made entirely clear on this freezing question I have thought best to quote an editorial from his paper, the *Modern Farmer and Busy Bee*, under date of February, 1905, and here is is:

> Dr. Miller requests in *Gleanings* that the editor of the *Modern Farmer* tell him how many bees it requires for them not to freeze in the winter. A normal colony, doctor, such a colony as one would expect to come safely through the winter in a cellar. There is no use of hair-splitting about one bee, two bees, or how many bees. Bees enough to make a normal colony, as many bees as one would expect to winter safely under other conditions, will get through the winter all right if they have plenty of honey, or, better, a sugar-cake, directly above the cluster, and are properly protected with a store-box, or something of that kind, to keep out the wind and prevent the sudden changes, and danger of bees being chilled before cluster forms. A full colony of bees formed in a cluster for winter does not freeze. They starve if they do not have plenty to eat in the right place.

We intend to test the proposition enunciated in 1 and 2, this summer, by putting some bees between cakes of ice.—ED.]

FOUL BROOD NEAR; WHAT IS TO BE DONE?

I have about 50 stands of bees, and foul brood has broken out about one mile from me; in fact, nearly all the bees for 20 miles down the valley are dead or have the disease. I don't think my bees have it yet, as I have looked and can't find it in any of the hives. What would you advise me to do? We have now no law in regard to foul brood in this Territory. Is there any preventive I can use? Can the frames and hives be used again? I have read a good deal in GLEANINGS in regard to the disease, but I don't understand it.

Cedar Hill, New Mex. W. C. MAY.

[A most excellent preventive against the inroads of foul brood is to practice shake or brushed swarming, putting the bees on frames of foundation. In the fall, if it is necessary to feed syrup or honey put in a small quantity of naphthol beta, which is a foul-brood germicide.

During a dearth of honey it would be advisable for you to look the combs over pretty carefully every ten days to see if any foul brood starts. You need have no fear so long as honey is coming in.—ED.]

TWENTY BALLED QUEENS IN A CLUSTER.

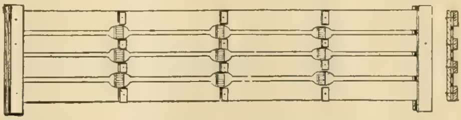
I ran up against a proposition the other day, and it is this: I called on a neighbor bee-keeper, and he had just found a stock of bees on the outside of a hive in his apiary, acting as if swarming. He found twenty queens in the cluster, and all balled. He had just got them caged when I called. All of them looked like laying queens. I can find nothing in the A B C book nor in Langstroth on the Honey-bee, touching this matter, and I am at a loss to account for it. He hadn't missed any bees from other hives, and they don't start swarming till about the first of June in this locality. Possibly you can explain it to me. M. TOWNSEND.

Ontario, Oregon.

[I should question very much whether the queens found in balls were laying ones. It would seem like a case of an after-swarm that had taken with it several virgins. After flying about in the air for some time the bees attempted to go into a hive already containing bees. This would result in a free fight, and probably the loss of all the queens. Even the bees of the swarm might take a hand at the balling business after they had got stirred up.—ED.]

A FREE-PASSAGE FENCE.

I send you by mail a sample of the kind of fence which I have been using for two years, which seems to give freer lateral communication than the ordinary fence. I know it said there is nothing new, but I have never seen or heard of any thing like it. A. M. V. HAGER.



Athol, Mass.

[We have had numerous models like the sample here illustrated submitted to us in the last three or four years. Theoretically they have the merit of allowing the bees to pass back and forth over the surface of the sections, making a more even filling. But the trouble with the fence here shown, and many others like them, is that they are too expensive to make. No bee-keeper would be willing to pay what a factory would have to charge to make fences like the sample shown; and it is very doubtful whether the comb honey produced with such fences would be any better filled than that produced between ordinary standard fences. The best free-passageway fence I know of is the Hyde-Scholl. Quite a number who have used them have reported that they secured better filling of the comb. While this is more expensive than the standard all-wood fence it would not cost as much as the one here shown.—ED.]

SENSE OF SMELL IN BEES; WHY THEY CAN FIND THEIR WAY BACK TO THE HIVES.

I notice the remarks of J. W. Porter, in the April 15th issue. He says, "If honeycomb be burned in a manner that the smoke from the burning comb can not be seen, how do bees recognize the fact? Why, by the same sense we use when we perceive the odor of cabbage or burnt rags in the kitchen, although there may not be any smoke. He says, also, "How do young bees find their way back to their hives when taken away a short distance?" I should say they were guided by their bump of locality or direction. A pig can find its way back when taken from home, and so can horses, dogs, and other animals. When young bees are moved they must be conscious of the direction they are taking. If they find their way back by scent then they display a greater sense of smell than old bees; for it is well known that, when a hive is moved only a short distance from its old stand, the absent bees coming from the fields can not find it. I do not know for a fact that young bees *can* find their way back. I have observed young bees just from the cells crawling in unchallenged at the entrance of neighboring hives, and wondered if young bees have not, like drones, free access to any hive.

ARTHUR T. GOLDSBOROUGH.
Wesley Height, Washington, D. C.

[You quite effectually dispose of the smell theory on the part of your bees in locating their hives when you say that the old bees (which is a fact) will not be able to find their entrance if the hive is moved a short distance. By "short distance" I mean 20 or 30 feet or more. I see no reason why the sense of smell should be any more acute in young bees than in old ones. Indeed, it is not definitely proved yet that young bees will find their own entrance.

Yes, it is a well-established fact that baby bees, like drones, will be accepted at any entrance.—ED.]

HOW TO ARRANGE A LEWIS FOUNDATION-FASTENER FOR FASTENING IN BOTTOM STARTERS, AND CUTTING FOUNDATION.

First take out the hot plate and grind or file the end to a thin sharp edge. Next, lower the block on which the sections rest to a position about ⅝ of an inch below the hot plate, so that, when a large piece of foundation has been fastened to the bottom of the section, the sharp edge of the hot plate may be brought slowly forward, cutting off all of the foundation except a stump about half an inch wide, which is the bottom starter. Invert the section on the machine and fasten the rest of the foundation, or that part left after the bottom starter has been set, and the work is done.

When I cut my foundation I take a board as long and as wide as the sheets of surplus foundation, and rule it off with a pencil to cut five starters to a sheet, making the rulings as much triangular as five to the sheet will allow. Draw lines from the rulings on either side of the board, and the pattern-board is ready.

Lay one, two, or three sheets of foundation on the pattern and the marks will show through enough to cut by. I use an old kitchen chopping-knife, such as our mothers used for chopping meat for hash, etc. This knife is kept hot by hanging on a hook just above the hot plate of foundation-fastener. In cutting, the knife is rocked back and forth over the rulings on the pattern-board. The children do most of the cutting, and stack them up in neat piles.

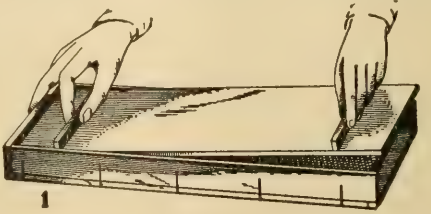
I have a hopper made of lath, holding, when full, 1500 sections at a time, which, with its inclining floor, feeds the last section down within easy reach of the operator.

The sections, when ready, are disposed of by putting directly into supers when they are emptied, otherwise they are put into crates near by.

F. W. HALL.
Hull, Ia., Feb. 9.

[Although Mr. Hall has made use of the Lewis fastener, we suppose that any of the machines using a hot plate could be adapted to his method by a little change.

If we understand him correctly, in order to put on bottom starters as well as the upper large piece, he first fastens the large sheet in the ordinary way, then runs out the hot plate, slowly, to cut off all except the narrow stub for the bottom starter, and finally reverses the section, fastening the remaining large piece of foundation as usual. He may have some good reason for cutting the foundation with the hot plate, but we do not see why this narrow piece could not have been cut with a knife on some such arrangement as his cutting-board, and then the two could be fastened separately, in the ordinary way, by simply reversing the section, after the first piece is in, and put in the second one. It seems to us that this latter method would be quicker; but, even if it were not, it would save the expense of changing the construction of the machine.



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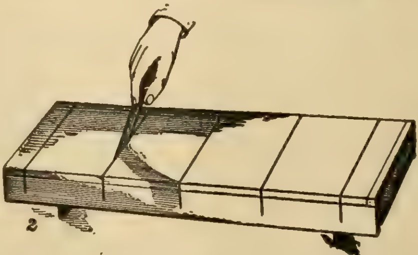

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For cutting foundation into starters or full sheets, we consider the miter-box, as shown, ahead of any thing else we have tried. Any one can make such a device, or they can be obtained from any of the dealers. The general principle of this method will be apparent from the illustrations.

Place the box on a table, with the saw-cuts down, as in Fig. 1, and lay in five to twenty sheets with the ends even. Then put on the cleated board and turn the box over so it rests on the cleats as shown in Fig. 2. A circular knife, free to turn easily on a handle, is the best for cutting; but a keen butcher-knife will do about as well. It need not be hot if it is well lubricated with soapy water. Hold the knife at an angle, as shown, and move it rapidly but lightly back and forth, cutting only on the stroke toward you.

The illustration shows the box adapted for full sheets; but by putting the saw-cuts closer together, starters of any width can be cut. They could also be arranged for triangular or odd-shaped starters. With one of these boxes 150 full sheets may be easily cut in one minute; or, if starters are wanted, as many as two or three hundred. The work requires no care, and a mistake can not be made.—ED.]

GROCER MENTIONED IN FEB. 1ST GLEANINGS NOT IGNORANT OF THE FACTS ; SIMPLY WROTE TO SECURE PROOF TO USE IN CONVINCING CUSTOMERS.

Regarding my letter to Mr. Pouder, on which you comment in Feb. 1st GLEANINGS, I will say that I had no misapprehension whatever on the subject of manufactured honey when I wrote that letter, which was only one of several letters written to other parties at the same time, one of them being published with a column answer in *The Modern Grocer*, of Chicago, of Nov. 19, 1904. I wrote in the way I did to secure proof of the genuineness of comb honey for the benefit of all my customers, particularly the family of Dr. C. N. Brown, of this city, who claimed to *know positively* that comb honey is manufactured, and nothing I could say would convince them. My method of writing secured fuller and more numerous replies than could have been obtained in any other way, and no one has read them without being convinced absolutely. However, the opinion is all but universal that comb honey is manufactured, and nothing less than a special presidential message on the subject will enlighten the majority of people for a generation at least.

Fairmount, Ind, Apr. 1. C. A. COOK.

[You are exactly right. The opinion is all but universal that comb honey is manufactured, and it is high time that bee-keepers were helping to disabuse the public of that erroneous notion. At present the new Honey-producers' League offers the best solution of the difficulty.—ED.]

BEES IN THE CELLAR WITH CHICKEN-INCUBATORS.

I am a subscriber for GLEANINGS, and have been much interested in the different discussions in regard to wintering bees in a cellar. I put five colonies in my cellar about Dec. 1, and, having two incubators in the cellar, I was very anxious to know the outcome of the combination. The cellar was a moderately cold one, as some potatoes froze in one corner behind the bees and under one of the ventilators. My bees seemed not to notice the incubators until the warm weather in March, at that time I gave them their first flight; but they did not quiet down when I put them back. The continued warm weather and the incubators kept them in an uproar so they came out for good two weeks later. WALTER DEGRAW.

Springfield, O., April 16.

[Bees and chicken-incubators in the cellar would make a bad combination. The incubators would be doing their heaviest work just at the time the bees would be getting uneasy, and when it would be difficult to keep the cellar cool. In this case you had better have left the bees out without putting them back.—ED.]

SCATTERED EGGS.

In one of my hives I found, when opening it, two and three eggs in a cell. These eggs were scattered all over the comb. What is the cause of it, and would it do to keep the queen? M. D. WHITCHER.

Los Olivos, Cal., March 22.

[Scattered eggs might be either the work of laying workers or of a drone-layer. Or they might be the work of a queen just received from the mails, and which had not begun to lay regularly. The cases of a fertile queen scattering eggs in this way, however, are very rare; and when we find this condition we may look for either a drone-layer or laying workers.—ED.]

MORE MODIFICATIONS ON THE SIBBALD NON-SWARMING PLAN.

I thought, as I am getting somewhat interested in your literature, I should give you my experience in regard to divided swarms in preference to "shook" swarms, and have tried it two ways—first, to place hive No. 2 in place of No. 1, then remove one card of brood, together with queen, to hive No. 2; then remove No. 1 some distance away in the apiary; and as the field bees return they will come back to the old stand, or hive No. 2, and by night one will have a nice large swarm in No. 2. Sometimes it drains No. 1 too heavily, and in this case place a super from No. 1 on No. 2.

Second, remove No. 1 from its stand and place No. 2, then remove one (or two cards of brood is better) with queen-cell. Be sure not to get the queen, and place in No. 2; then remove No. 1 some distance away. It works well to remove the super also. This latter plan has in all cases proved the most successful, in my estimation at least.

I have one colony of this latter kind treated in this way already, this spring. I had one colony die out, all but the queen and about 50 bees. I put this queen and her bees in a cage and placed her in a hive with comb and honey, then took one comb of brood from another very strong colony, and placed it in the same hive, then placed this hive in place of a strong swarm, and removed No. 1 about four feet. It seems thus far to be all right. Both colonies are doing finely. The field bees accepted their new queen all right. H. O. SWARTZ.

Schoolcraft, Mich., April 22.

A BEE-KEEPER FOR EIGHTY-FOUR YEARS.

I shall be 87 years old the 16th of May, and have been in the bee business ever since I was four years old. My father kept bees. We lived on the east shore of Lake Champlain. At the age of four years I was on the south side of our house, and a swarm of bees came and alighted on a tree near by. I went into the house and told my mother I had found a swarm of bees. My uncle cut the tree down, and my father hived them. I have kept bees during my life to the present time. I sold in two years' time enough bees and hives to amount to $570.

ENOS ASELTINE.

Swanton, Vt., April 17, 1905.

CONTROLLING SWARMING, AND PREVENTING INCREASE.

In looking over the article in GLEANINGS of April 1, p. 353, describing H. G. Sibbald's method of controlling without shaking or allowing natural swarms, I thought I should like to give my plan of handling swarms without much increase.

When a natural swarm comes off with a queen I want to keep over, I take the swarm on two combs and some full sheets of foundation and starters. Set it on the old stand, and put on the super from the old hive, if any, with a queen-excluder, after turning the old hive around. Then shake all the bees in front of the swarm from the combs of the old hive, and distribute the brood among the weaker colonies. By so doing, before the honey-flow I get my bees in good shape so that I can get my reward.

JOHN BAILEY, SR.

Bracebridge, Ont., April 10.

[The plan that you describe for controlling increase is a standard orthodox one—so good, indeed, that many bee-keepers practice it in preference to all other methods.—ED.]

CARRYING COLONIES ON A STRETCHER.

I took 73 colonies from cellar, and placed them on summer stands, on the evening of March 28. Wintered without loss, all in good condition. I carried them 300 feet, and was 1½ hours in completing the job, including the contracting of entrances. I carried them on two stretchers, three hives on each, with two men to a stretcher.

Syracuse, N. Y., Mar. 29. H. C. MILLS.

[We have tested various methods of carrying bees out of the cellar—two or three hives on a stretcher—but we prefer to carry one hive at a time, and one man to a hive. When two are carrying a load between them they must keep in exact step—something which it is a little difficult to do over rough ground at times. Then the man at the rear can not see where he is stepping.—ED.]

HOW TO CONTROL INCREASE.

I have about 25 stands of bees, and I do not feel able to buy the hives to take care of all the swarms. Last season I lost a great many swarms on account of not having hives. I wish you would please tell how to keep them from swarming. Will the excluders keep them from swarming, and at the same time allow them to work the same? Please give me size of sections that are mostly used. P. D. MCNEALLEY.

Taylorstown, Va., March 20.

[To control increase we would recommend to you recent articles referring to the Sibbald non-swarming method in these columns. Excluders will not keep bees from swarming. Entrance-guards or Alley traps having perforated metal will keep queens from going off with the swarm, and that is all. Sections most commonly in use are 4¼×4¼. The 4×5 are, however, rapidly gaining favor in many markets.—ED.]

PUTTING UP HONEY FOR LOCAL CUSTOMERS, IN STONE JARS.

Mr. Root:—As you wanted to hear from some others in regard to putting up extracted honey by the E. D. Townsend method, in April 1st GLEANINGS, I will say that I have customers who come to me in extracting time, bringing with them stone jars for me to fill. They tie up those jars in fine shape, and set them away to grain solid. After letting them stand for two or three years they melt the honey as fast as they want to use it.

I guess there is something in location and variety to think of, in putting up extracted honey. S. F. MILLER.

North Manchester, Ind.

Will it do to rear queens and have them mated from drones of the same hive?

Harper, Iowa. JOHN HAUPERT.

[Yes; and if you desire to develop some desirable trait or quality in the bees you will be compelled to in-breed; then by selection pick out individual queens that will show the desirable traits in the greatest and largest predominance. It is not practicable to in-breed to a great extent with bees unless there is only one colony in a radius of three or four miles; and even then the queens and drones might fly further; for the tendency of virgins and drones is to fly away from the home yard in order that the breeds may be crossed, for nature seems to work along these lines. While in-breeding accentuates and develops desirable traits as nothing else can do, it is liable to develop weaknesses, such as a lack of vigor in the resulting stock.—ED.]

OUR HOMES,

BY A. I. ROOT.

Quench not the Spirit.—II. THESS. 5 : 19.

Again and again through life I am reminded of the fact that the human family, like the bees in a hive, are to work together. Not only are neighbors to be neighborly, just as the bees in the same hive are neighborly, but God's plan was that all *ages* should be neighborly. The very best work can be done where the old and young work together. Dr. Olsen's joke has pretty well gone by, and I think we are all, perhaps, a little better satisfied with things as they are, since he has made this stir. To banish from the busy traffic of life all men over 40, or, if you choose, over 60, would be almost as bad as to talk about banishing those under 40, or, if you choose, under 20. Huber is 21, and Ernest is 42; and to keep it up arithmetically I ought to be 63 instead of 65. Well, when we three tackle some business proposition we usually handle it; and if it is a tough one we call in the two sons-in-law; and for *some purposes* we often find it a pretty good plan to call in the *women folks* for counsel. Now, that is not all. There are several grandchildren who are beginning to have quite an eye (and head too) for the problems of this life.

Well, what I started out to say was not exactly that we are all needed of all *ages*, but also that there is great need of perfect harmony. This is all true; but there is still another thing true. The grandmothers and grandfathers should all through life recognize they are constantly setting examples; and in even a model family there is a great likelihood that the younger ones will be "chips of the old block." The children and grandchildren with all present advantages and improvements should be expected, as a rule, to outstrip the older ones. But even if this be true they are very likely to copy not only their good qualities but bad ones as well.

A few days ago Huber was cleaning up our automobile. It is getting to be springtime, and it is rather difficult to keep the machine looking as neat and tidy as Mrs. Root would have it. Besides, I expected to take it in the afternoon to a Congregational conference in another part of the county. Huber had the machine out under one of the apple-trees where he could work on the grass; and Leland, our fourteen-year-old grandson, was helping. When I looked at my watch I remarked it was after school-time; but he said, by way of explanation, he was not feeling very well that morning and his mother said he need not go to school. I did not say any thing, for I recognized how exceedingly boylike it was to feel well enough to work out under an apple-tree in May, especially at a nice piece of machinery, while he did not feel well enough to go to school. I guess one reason why I did not say any thing was because I remembered it was very much like my own self, especially during my early years. Of course, when one gets to be 65, and is deacon of a church besides, he is not expected to let his feelings influence his conduct exactly as a boy's do. The machine was all in nice trim, and for the first time this season I started out for a "gallop" across the country. The barometer said rain, and the Weather Bureau said rain, and Mrs. Root worried about my starting out, especially as the country roads were very hubby, with bad mudholes now and then which I knew would be found. When I got out in the country amid the green fields, budding orchards, and occasionally a cherry-tree in full bloom, I began to fell the inspiration. It almost seemed as if the *machine* also felt glad to get out into the country once more. Although this is the third summer I have had it, it seemed as if it never worked so well before. When I had made about half the trip of ten miles it began to rain; but the roads were so rough, and there were so many deep mudholes (so deep, in fact, that if I got into one of them the machinery would strike the ground) I found it difficult to make very much speed in the rain unless I pushed ahead a little recklessly. As I had on my rain-proof overcoat and my usual fur cap I reasoned that the rain would not do much harm until the roads got so wet as to be slippery. This would make it dangerous; so I put on the power, hoping to reach town before the roads became so wet as to slip. The little machine just bounded over the rough places. Some of the time it made me feel as if I were in very truth aboard of that flying-machine. We jumped and bounded until I could scarcely keep my seat, and it seemed as if the wheels touched the ground only now and then.* I have become so accustomed to the guiding-lever that I found I could keep the wheels on a very narrow ridge between two deep ruts without getting into either of them.

I came into the little town of Chatham all right, with the blood of health tingling to my fingers' ends. I suppose you know it is true that I have all my life delighted in riding hobbies; and *sometimes* it is not at all to my taste to get off from my hobby and attend to duty; and it was so in this case; for when the shower blew over I felt as if I would rather ride that automobile the rest of the afternoon then to attend to any *sort* of conference.

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* Some of you may say, "Yes, that is all very well so far as *you* are concerned, putting that machine up to high speed and making it jump so that the wheels hit the rough roads only a part of the time. But how about the unlucky people who might happen to be driving horses on the same road? No doubt you enjoyed the spring air in the month of May that gave you inspiration, etc.; but was it really the kind of inspiration a Christian should indulge in?"

My reply is, while driving so fast I did not meet any vehicle of any kind. Had any come in sight, of course I would have slowed up. Once just before the rain, when I was on a bad piece of road I caught sight of a farmer and his wife coming toward me. When quite a piece off they stopped and the woman began to get out. I at once ran my machine off the beaten track, went forward to meet them, and told them I was very sorry indeed to cause them the least bit of trouble. Then I took one of the horses by the head and led them past the auto. They scarcely noticed it, and then the woman began to apologize for having made me trouble. Then her husband said, "Mr. Root, if I had known that it was *you* I would not have worried; and if the fellows who run these machines were as careful and as anxious to avoid giving anybody trouble we should have nothing to complain of. But I supposed you would smash right ahead just as they usually do; and with these deep ditches on each side of the road I thought it was safest to have my wife get out. We are very much obliged to you for the trouble you have taken not to hinder or annoy us."

The papers presented were excellent, but I found it difficult to hold my mind down to the business in question. There was a great temptation to keep thinking of the trips through the country I was going to make soon. Another thing, although there was a pretty good-sized audience the windows were not kept open to let in fresh air, and so, of course, I began to feel dull and stupid. I had planned going home in the night after the evening session, and going back next morning before the opening of the second day; but when I came to go over the road, and saw the number of deep holes that one might get into I knew night travel was out of the question. By *omitting* the evening session I could go home by daylight and return by daylight in the morning, and thus enjoy two ten-mile rides. Then my conscience began asking me what excuse I had for being absent in the evening. I was one of the delegates appointed by our church, and was expected to make a report of the proceedings. Just a few hours before, I was inclined to criticise my grandson who did not feel well enough to go to school; and what had I been planning as an excuse for being absent in the evening? First, I could tell those present, who might object, that I had important business at home. This was true to some extent; but the *whole* truth was that the younger members had charge of the "important business," and I was *not* particularly needed. Then before I knew it I was trying to persuade myself that I did not feel well, and there was a little truth in that. I did not feel *quite* as well as I did when I was riding that auto to escape the raindrops; but to say I did not feel well enough to be present during the evening would be a rather large exaggeration. Then Satan made up a lot of other excuses. Do you think I make a mistake in ascribing it to Satan? Not a bit of it, friends. He is opposed to religious meetings of every kind; in fact, he will wax eloquent on the theme if you give him the least bit of encouragement or listen to him at all. One of his "ear-marks" is that he is *every time* and *always* opposed to God's holy word, to all gatherings of church people, and to every thing that bids us be consistent and honest, and true to the dictates of our conscience. I finally said, "Get thee behind me, Satan."

One great reason why I did *not* "feel well" was that I had not planned for my noonday nap; and the close air in the audience room made me feel quite badly for a time. Pretty soon, however, we had a recess, and the windows were opened so wide that we had an abundance of cool air. Right after supper I got permission to swing a lounge right before an open window (in a pretty little home) so as to get the nap I should have had right after dinner.* Sometimes I omit these afternoon naps because I dislike to annoy people; but the half-hour of sleep that I got with the cooling breezes after the summer shower coming in at that open window was worth to me—well, I can not say how much. We older people have no right to deprive these bodies of ours—these God-given bodies—of the rest they require to enable us to do our best. For many long years I thought I had not *time* for an afternoon nap; but I have discovered it is a great saving of time. One hour after the refreshing sleep is not only worth two without it, but it enables me to do things I could not have done without being rested up.

I enjoyed the evening session immensely. I would not have missed it for any thing; and one of the papers presented there I expect to give on these pages very soon. Of course, I had a part on the program, and several things contributed to make me feel nervous about it. For instance, it is exceedingly embarrassing to me to be obliged to make an audience wait. Yes, if I ask them to wait until I turn over the leaves of my Bible and find my text I am sure to become flustered, and perhaps can not find the text at all, even when it is right before my eyes. Accordingly, I usually manage so as to have the Bible open at the right place, or have marks in the book if I want several texts, and then make a pencil-mark around the text I want to use. At this session, when it came time for me to give my talk I discovered the good brother who led the meeting had laid the big Bible under the table on the floor because there was not room for all their papers on the little table. Now, I suppose most of you will laugh at me when I tell you that I worried a good deal because I feared getting the Bible off the floor, and finding the right place, would get my carefully planned talk all out of my head. It troubled me so much that I prayed very earnestly that the Holy Spirit might help and sustain me, and enable me to speak as I ought to speak and wanted to speak. And herein comes one of those wonderful (to me) answers to prayer. Now please take in the situation. An hour or two before, I had been meditating some excuse to get away from the conference. Why, I was actually a good deal like Jonah when the Lord told him to go to Nineveh. May the Lord be praised that I put away the temptation, and went straight to Nineveh where God wanted me. Then, instead of making excuses, and prevaricating, the Holy Spirit directed me to tell the plain honest truth; if I felt embarrassed and troubled, to be frank in the outset, and not try to conceal it. So my opening address was, as nearly as I can remember, something as follows:

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*After having had that restful nap by the open window I took some of the little girls around town for a ride, and finally gave the woman and her baby a little ride, who was so kind as to give me a nice place to sleep.

"Dear friends, I have been asked to talk to you on the subject of religion and business. Well, if I were going to talk to any of you on business I should want to get up close to you. If it were *important* business I should want to sit down by your side. If I were also going to talk to you about spiritual matters, the worth of your own soul, I should most *assuredly* want you close beside me. But the fact is, you are away off at the further corners of a large church, and I am pretty close to another corner. I am not a minister of the gospel, and I am not an orator; but I have prayed that I might be able to do you some good; but I am sure I can not do it unless you come up close to me and occupy these vacant front seats."

The honest truth seemed to have touched the spot. The audience rose almost *en masse;* and when they placed themselves close around me I saw by their smiling faces that I had won their attention and their sympathies. Then after I thanked them I said:

"One thing that greatly relieves my embarrassment in speaking to this body of ministers and other intelligent people is the presence right back of me of my old friend—one who has been a *good* friend ever since my boyhood—the Rev. Chauncey N. Pond; and I want Bro. Pond to help me make my talk."

Bro. Pond responded quite promptly, "All right, Bro. Root. Tell me what you want me to do and I will do it with great pleasure."

"Well, Bro. Pond, I want you to get that blessed old Bible out from under the table, and then I want to have you hunt up the 26th verse of the 20th chapter of Matthew." I knew Bro. Pond could find it readily, for he had stayed at our house the night before, and we talked about it at the breakfast-table. I asked him to make a pencil-mark at each side of that 26th verse so my eye could catch it quickly, when I got at the point of my story where I wanted to use it. I will not give the rest of my talk here; in fact, I gave you a large part of it on page 510 of our last issue. The point I made was that the farmer, the grocer, and the consumer were not the only ones in that transaction, wanting the best of the profit or all of it, if they could get it; but in the great affairs of our State and nation, the trusts, and everybody else for that matter, seem to want the "whole earth." They want the best places and the best positions. But Jesus said, in summing up this very thing, in speaking to his disciples, "But it shall not be so among you." His followers were to do things differently. They were to live with different aims and objects in life. They were to love their neighbors as themselves.

Then I continued about as follows:

"If the farmer who raises the potatoes, the grocer who sells them, the man (or woman) who orders potatoes from the grocery, are all followers of the Lord Jesus Christ they should do business differently. When the middleman found that the farmer had a hundred or more bushels in his cellar that he could not sell, he should have said to him something like this: 'Look here, John. I do not want to see you lose those potatoes, and I will do my very best to help you out. Even though the potatoes I have in my cellar did cost me 28 or 30 cents I will sell them at less than cost if necessary.' Then this Christian grocer (yes, there are such in the world) should tell the man who drives his delivery-wagon to explain to all his customers that he was going to try to help the farmers sell their potatoes, and that if they would buy a bushel at a time, and let him deliver them at his convenience, he would make a very low price, say 20 or 25 cents. Then the man or woman who bought these potatoes, *and who belongs to the Lord Jesus Christ,* should turn in and help something after this fashion: 'It is really too bad, Mary, that these farmers are going to lose their potatoes, and will have to throw them away. Can't you use more of them in making bread than you have been doing? and we will all try to use more potatoes in the family than we have been in the habit of doing, just to help get rid of the surplus. If we all go at it in the right way we can, without doubt, prevent our good friends the farmers from suffering such a very heavy loss.' Now, friends, if everybody did business in that way—millionaires and railroad corporations, beef trusts, and all the way from the bottom up—what a beautiful world we should have! Would it not be almost a heaven here on earth? Think of the expenses in the way of litigation that would be saved just to make men fair and honest. Why, it fairly stretches one's imagination when he tries to contemplate a neighborhood or a community where there was nobody who wanted *all* the profit, no matter whether his neighbor suffered loss or not."

I do not know whether my little story has taught you any lessons, dear friends, but it has taught me one. When I contemplated for just a few minutes absenting myself from that evening session, Satan frightened me by pushing on with the chance he thought he had before him. Why, I was even tempted to say mentally something like this: "Well, I do not like conferences very well, any way. They never have their rooms ventilated so one can feel well, and they do not amount to very much after all. It is a great deal of trouble to drop business and every thing else, and get away at such a busy season of the year." Yes, when Satan went to such lengths as that sentence, it *frightened* me. After that experience I enjoyed the conference from beginning to end, and it was a deep spiritual joy, something that *abides* and *satisfies the soul.* The enjoyment that I obtained by running an automobile to get out of the summer shower was all right and honest; but when we let things of this kind tempt us to neglect serious and sacred duties, we are making a bad use of God's gifts. I not only enjoyed the conference from beginning to end, but I enjoyed giving a report of it to our home church; and I enjoyed particularly exhorting my listeners to make an extra effort to be on hand at our semi-annual conferences.

Had I yielded to that temptation to stay away it would have brought spiritual darkness, and it would have crippled these very Home papers. Do you see how *little* things may grieve away the Spirit, as in the language of our text?

HIGH PRESSURE
GARDENING
BY
A. I. ROOT.

"OF THE PEOPLE, BY THE PEOPLE, FOR THE PEOPLE."

Perhaps the above heading may look a little singular in the department of High-pressure Gardening; but I think it is right after all. On page 510, last issue, I said the farmers could not sell their potatoes in Traverse City because an ordinance had been passed forbidding them to peddle. I wondered at the time if that ordinance was going to stand. Just now the same thing is coming up in Cleveland. My opinion is that it is a concerted movement to benefit those who are interested in keeping up prices. We are told that supply and demand regulate the proper value of all commodities. If the grocers are getting too much profit, then the market-gardener and the consumer are both doubly interested in making a short cut without the aid of the middleman; and, most important of all, it is generally conceded that all the garden-stuff is ever so much better when it gets quickly from the ground on which it is grown to the consumer. Peas, green corn, string beans, etc., to be nice and have their full flavor should reach the good housewife the day the stuff is gathered. This can be accomplished to *some* extent by leaving the stuff at the groceries; but the gardener who makes daily rounds, or, say, every other day, can get acquainted with his customers, can learn their peculiar likes and dislikes, and can, without trouble, give just what they want and *when* they want it; and thus friendly relations may spring up and continue for years between the grower and consumer. Now, of course, these "trust" people (for it is nothing else) must trump up some excuse for stopping the farmer from coming to town with his vegetables. What do you suppose the excuse is? Why, that vegetables, etc., sold in the open air will collect bacteria, microbes, etc. My good friend, where do you suppose bacteria would be most likely to congregate—in the average grocery where such stuff is sold, or in the open air on the farmer's wagon, or in his stall where he brings his stuff before daylight, as a rule, and sells it all out before noon? Read the following, which I clip from the Cleveland *Leader:*

> The arguments which Superintendent Schmidt presented on the question of the code relating to the sale of vegetables in the open were mainly in the direction of showing what hardship it would work upon the farmers who come into the city to sell their produce and to what extent it would affect the market business as it is now conducted.
>
> "Which do you think would be preferable," asked Dr. McAfee, "to take a living away from a few families who come into the city to trade, or to take the lives of many of the people living in the city? The dust and dirt of the street blows on these things, and only cooking will kill the germs."
>
> "An injustice is being done to people who pay rent," added President Ward. "I don't see any justice at all in allowing a handful of farmers to come into the city to spread out their stuff and gather bacteria. These things could be sold to grocers direct. However, we will look into the matter and take it up with the grocers' association."

Now, of course the majority should decide this as it does every thing else; and the producer and consumer, in a fair vote, would most assuredly outnumber those who are in favor of having all perishable products carried to the grocery; but I think you will find in this case, as well as some others, that the "bosses" do not propose to let the majority rule. The ordinance will be passed before the farmers have been even consulted. It will probably be just about like our temperance work. Our Brannock local-option law was to permit the majority to rule in keeping saloons out of residence districts; but the saloon-keepers say by actions, if not words, "The majority shall *not* rule. We are going to plant our saloons right around your homes, and in the midst of them, whether you like it or not." I do not know that they add, "Help yourselves if you can," but they would do it if they dared. And the saddest part of the whole thing is that the present Governor of Ohio is right in with the saloon-keepers and brewers, and the political bosses say that he shall have another term. Some of you may try to persuade me that I am mistaken, but I am not. I have followed this thing from beginning to end, and know all the crooks and turns. Now, then, fellow-countrymen, shall our bosses—these men who *hate* righteousness and *love* iniquity—decide these things for us, or shall this be a nation where the laws are made of the people, by the people, and for the people?

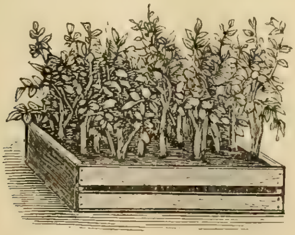
High-pressure gardening is a grand good thing; but it will not amount to very much if we do not occasionally transfer the "high pressure" to this matter of making and enforcing our laws. God helping us, we are going to make these "enemies of all righteousness" *feel* the pressure, and that right soon.

GROWING BASSWOODS FROM THE SEED.

Heigh-ho! we have got it. One of my expert young gardeners, Mr. Frank Ritter, made a visit to the magnificent grounds of Storrs & Harrison, of Painesville, O. While there he saw them cracking open the shells of canna seeds before they were planted. After asking some questions, and taking some of the canna seeds home, he not only succeeded in making them grow, but, by cracking off the hard shell of the basswood, he got a very good per cent of germination. The first plant that appeared was 17 days after sowing the seed in very rich old compost. It appears that this hard tough shell is nature's provision so that the seed may remain in the ground several years and not lose its vitality. When the outer shell finally rots enough to let in moisture the seeds commence to sprout and grow; and that is the reason why, in my experiments, only a few of the basswood seeds germinated in one year, a few more the next, and so on. Alternate freezing and thawing will break the shell of a few of the seeds—that is, if they are on or near the surface. If deep down in the soil, or under a heavy coating of leaves, the vitality may be preserved for many years. We tried breaking the shells with boiling water, but did not succeed. At present we have no quick way of breaking the hard shell. So far I have been cracking them with a hammer, when spread out on a piece of stone flagging. They should be about half an inch deep, in good fibrous soil mixed with old well-rotted manure. Rotted sods, and manure such as florists use, is as good, perhaps, as any thing.

Now, friends, I hope some of you will run opposition to me and enjoy the work as well as I do, growing basswoods for timber and for honey.

While I write, our boys are taking up the little plants from under our basswood-trees, and setting them in trays like the one shown below. Each tray holds four rows of little trees, eight or nine trees in a row; so we estimate every three boxes will make 100.



PLANT-BOX 6½×12×3½, TO HOLD 32 SEEDLING BASSWOOD-TREES.

We put an inch of old well-rotted manure in the bottom of each box; then about half an inch of potting-soil, and on this the seedling trees are placed, taking up each little plant with a lump of dirt attached—say a ball of earth an inch or more in diameter. After they are placed in the tray, some more potting-soil is put in between the plants, with a spoon, filling it up pretty nearly to the seed-leaves. We then set the boxes flat down on a piece of stone flagging, with a slight blow. This sets all solid. Now give the little boxes a sprinkling of water—just enough to soak the soil around the roots, and place them close together in the ground on the north side of some building. Put them just far enough away from the building so they will be entirely in the shade by the time they begin to wilt under the strong heat of the sun; and have it arranged so the heat of the sunshine will not strike them in the afternoon until they can bear its full rays without wilting. In this way you have automatic shading. When the plants begin to crowd in the boxes, take each one up with a spoon, going clear to the bottom of the box, getting manure and all. You can now set them in rows far enough apart for a horse to pull a cutivator between them. I would not put the rows nearer than three feet; and if your soil is as rich and strong as it ought to be they should not be nearer in the row than six inches. You can put them closer if you are crowded for room, but they should grow three feet tall the first season. Better give them room enough.

The above directions will answer for a great lot, not only of trees of different kinds, but tomatoes, celery, etc. If you want the basswoods to make a big growth, be sure not to let them suffer for water during a drouth. After the roots once get well down in the ground they will take care of themselves; but basswoods do best, as a rule, on rather wet or damp ground; but it should be sufficiently underdrained so there will never be any standing water.

WINTERGREEN BERRIES, ONCE MORE.

After dictating my story in the last issue I asked our subscription clerk if we had any subscribers at Merritt, Mich. She replied there was none on the list. Imagine my surprise, therefore, on finding the letter below on my table this morning:

Mr. A. I. Root—kind Sir:—My father takes GLEANINGS, and I see in it that you speak of a little boy at Merritt. Walhalla is what was formerly Merritt. The postoffice was formerly Manistee Junction. I am the little boy who sold you the berries. My name is Louie Bates. I read all of your story. I will always read them hereafter. I go to Sunday-school at Tallman, two miles from here. I am going to school every day. We have only three days more of school. My father and mother belong to the Christian Church at Tallman.

There are lots of wintergreen berries here, and I am going to send you a box of them with this letter. There are lots of roots; and if you will write me, telling how many you want and how you want them fixed, I will send you some. I see by GLEANINGS you want some. I made about twenty dollars selling trailing arbutus. I like to sell them, they are so pretty. I tried to get some to send you, but they are all gone. I remember you, and your helping me sell berries. I write you because I want you to know I attend Sunday-school.

I will close for fear I shall take up too much of your valuable time. But I shall never forget Mr. A. I. Root, and I shall always keep that copy of GLEANINGS.

Walhalla, Mich., May 8. LOUIE BATES.

Well done, Louie. Now, if your father is a bee-keeper I can certainly afford to make your folks a call when I go up to my place next time; and if you and I together can't make wintergreens grow under cultivation, it will be funny. If you attend Sunday-school I shall not need to worry about your getting led astray by the saloon-keepers, shall I? And if you keep as honest and straight and *unselfish* as you were that morning in making change for your berries, I shall feel sure, too, that, when you grow up, you will not be one of the men who "want the whole earth." Now, remember, Louie, I am going to help you pick wintergreen berries some time, Providence permitting. From your old friend

A. I. ROOT.

Friend Root:—I see you want plants of wintergreen, so I send you some by express. They are such plants as I set a year ago in a box filled with leaf mold, and mulched with moss, which has been kept well moistened. They are growing nicely. That is all I can tell you as to culture. I also include two small plants of *Hepatica* and two of trailing arbutus. I have heard it stated that the latter can not be transplanted successfully, but I have them growing finely in the same box with the wintergreen. The box was kept in the cellar during the winter. The local name for wintergreen here is "mountain tea." BURDETT HASSETT.

Reliance, Va., May 8.

Many thanks, friend H., not only for the plant (especially the trailing arbutus), but for the information you give that wintergreens can be grown under cultivation. We have got them planted outdoors in a rich sandy loam muched with moss as you direct.

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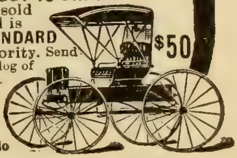

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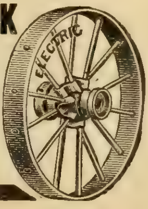

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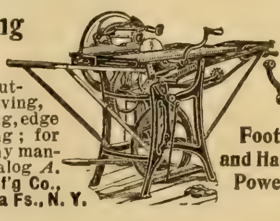

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can hnve the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfactien arising from these "swaps."

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange 10 or 25 Danz. supers (new) for uncapping-can, comb-bucket, or wax-extractor.
Thos. S. Work, Fort Morgan, Colo.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. Swan, Centralia, Kansas.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange 1½ and 3 h.-p. gasoline-engines; high-class make; good as new; for cash or part white extracted honey, or strong Italian colonies.
Morey, Lagrange, Ill.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. Hagen, 1632 Blake St., Denver, Col.

Help Wanted.

WANTED.—An active experienced young man as helper in the apiary. Give full particulars and references. B. Walker, Clyde, Ill.

WANTED.—Farmer boy to help me in bees and on the farm; one who would like to make it his home with me. D. H. Coggshall, West Groton, N. Y.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

For Sale.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. Reeves, Perch River, N. Y.

For Sale.—Three-frame nuclei with Italian queens, $2.25 each. Wm. H. Stanley, Dixon, Ill.

For Sale.—A few dozen cases of 60-lb. cans; good as new. G. L. Buchanan, Holliday's Cove, W. Va.

For Sale.—Nuclei and queens, good stock, special prices. Judson Heard, Macon, Ga.

For Sale.—800 lbs. beeswax from cappings. Always in market for bees. W. L. Coggshall, Groton, N. Y.

For Sale.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. Gray, Redwood Falls, Minn.

For Sale.—Twenty-five colonies bees in Langstroth eight-frame hives and supers.
R. J. Colburn, 6827 Union Ave., Chicago, Ill.

For Sale.—Two Root's foundation-mills and outfits—one 4¼-inch and the other 10-inch; nearly new.
G. D. Black & Co., Independence, Iowa.

For Sale.—About 125 swarms of bees, mostly Italian, in good 8 and 10 frame hives. Reference, N. E. France. For particulars write G. C. Pierce, Kilbourn, Wis.

For Sale.—Thoroughbred S. C. W. Leghorn eggs; 15, $1.00; 30, $1.50; 60, $2.50; 90, $3.25; 210, $6.50.
J. P. Watts, R. F. D. No. 1, Kermoor, Pa.

For Sale.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
The Hyde Bee Co., Floresville, Texas.

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. Hyatt, Shenandoah, Page Co., Iowa.

For Sale.—Three hundred two-frame nuclei five-banded Italian bees on Danzenbaker frames; young No. 1 queens. Lots of 10, $2 25 each; 20 or more, $2.00. Place your order at once. W. L. Womble, Raleigh, N. C.

For Sale.—On account of departure, 150 two-story eight-frame colonies; most frames wired; Italians and hybrids; sold cheap if taken in the yards; ideal location and fast-growing retail market; one failure in 20 years.
G. P. Howell, 6101 Dauphin St., New Orleans, La.

For Sale.—160 acres; 48 frames of bees under cover, with supers and empty hives; 700 fruit-trees 16 years old—good crop every year; three running streams; has county road on two sides of place; small house and outbuildings; good place for stock, bees, and fruit; $1500.
Wm. Clique, Hockinson, Wash.

For Sale.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. Hildreth & Segelken,
82-84 Murray St., New York City.

For Sale.—Black Orpingtons, Burton strain; importer of winners; grand in size, color, and shape. At Auburn show, 3 firsts, 1 second, 2 thirds, and 5 specials. Also first Buff hen and two specials.
W. H. Gifford, 151 Franklin St., Auburn, N. Y.

For Sale.—120 colonies of bees, 8½ acres of land, honey-house, and accessories; unlimited basswood and white-clover range—latter grown for seed extensively; no disease; good reason for selling. Write
Arnt Arneson, R. F. D. 2, Cameron, Wis.

For Sale.—Fifteen second-hand, two-story, eight-frame Dovetailed hives; nailed and painted, in good condition. Will sell supers without hives; supers equipped for sections 4¼x1½ and 4¼x1⅞, slotted; frames all new. Hives are Root's make, and good as new. Hives in lots of five, $2.00 each; supers 40 cts. each. No disease in this section. Jas. W. Bain, Marion, Ohio.

For Sale.—Two and one-half acres of land, nicely covered with mesquite trees; good five-room house; 3000 yards steel tank full of water from the roof; located 400 yards from S. A. & A. P. depot, 50 miles south of San Antonio; house insured for $500; just the place for a bee-keeper or queen-breeder. To be sold at a bargain. Write or call quick, as this will be sold cheap.
Udo Toepperwein,
1322 S. Flores St., San Antonio, Texas.

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MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

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Universal Manufacturing Comp'ny
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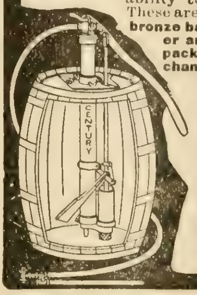

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Best barrel sprayer made. Capacity and adaptability to suit all requirements. These are features: **Its valves are bronze balls. Cylinder and plunger are brass. Indestructible packing crimps. Large air chamber. Agitator that agitates.** Its low

PRICE PLEASES

We make twenty styles sprayers. Every need specially met with **Hand, Bucket, Knapsack, Power Sprayers.** Spraying catalog free. Booklet on insects and plants and fruit diseases 10c.

THE DEMING CO., Salem. O.
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June Blooded Stock

that excellent stock paper, will explain how sheep-raising can be made highly profitable. The entire June number will be given up to Shropshire sheep. Chandler Bros. and Richard Gibson are only three of the many who will write "meaty" contributions. Subscribe now! 25c a year. **BLOODED STOCK, Box 218, Oxford, Pa.**

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Queen-rearing Outfits

Prices of Complete Outfits:

Outfit No. 1--Experimental
Postpaid, $1.50

1 Cell-bar,
16 Waxed Flange Cups,
1 Holding-frame,
12 Transfer-cages.

Outfit No. 2--Amateur
Postpaid, $3.50

2 Cell-bars,
35 Waxed Flange Cup,
1 Needle,
1 Holding-frame,
18 Transfer-cages,
1 Cell-stick.

Outfit No. 3--Professional
By Freight or Express, $7.50

2 Blank bars,
3 Holding-frames,
1 Cage-pocket,
1 Grafting-plug,
10 Comp. mating-boxes,
1 Bar-holder,
1 Swarm-box with lid,
2 Cell-bars,
1 Incubating-cage,
1 Grace Cell-compressor,
100 Flange Cups,
2 Swarth. nursery-cages
24 Transfer-cages,
1 Needle, 1 Stick.

These goods and books are for sale by all dealers in bee-keepers' supplies, and furnished at wholesale and retail by The A. I. Root Company.

Prices of Separate Parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
Breeding-queen Hive	1.00	
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange cups, unwaxed, 1c each; per 100	.75	.09
Flange-cups, waxed, 2c each; per 100	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Mating-boxes, complete, each 20c; 10	1.50	.12
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box lid only	.25	
Trap-box	.50	
T Stands, each	.10	.06
Transfer-cages	.10	.02

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"INCREASE" tells now to form new colonies without breaking up working colonies, postpaid	.25
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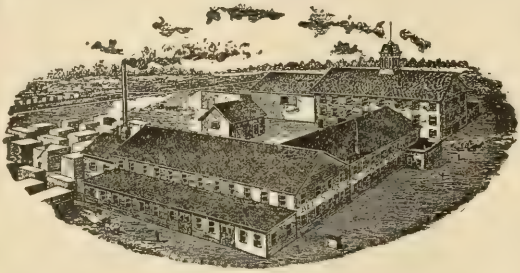

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For You.

Twenty successful years manufacturing Bee-supplies and raising Italian Bees and Queens.

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I. J. STRINGHAM,
NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case),	$8 50
In Chaff hives	9 50
Bees in any style of hive desired.	
Italian queens, tested,	$1 25
Italian queens, untested,	1 00
The best veils	40

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

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Golden or Leather Colored Italian, the best that money can buy anywhere.

THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

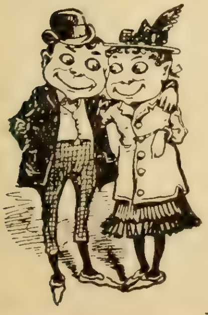
Prices before July 1	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	.....	.....
Straight five-band breeders	6 00	.....	.....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	.....
4 frames brood, 4 frs. foundation	5 00	25 00	.....

Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio.

Doolittle's

Partner selecting a queen. If you want the full particulars send for their circular, giving a description of their fine northern-bred . . .



Italian Queens.

If you want honey-gatherers you need look no further. . We are now ready to send out .· .·

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PROVIDENCE QUEENS PROVE THEIR QUALITIES

To be unsurpassed. .· .·
Reared by an exclusive method.
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LAWRENCE C. MILLER,
P. O. Box 1113G, Providence, R. I.

Carniolan-Italian Cross, also Pure Carniolans.

These bees came through the past severe winter in good honey-gathering condition, and I am now, March 27, extracting 25 to 30 pounds of new honey from each full colony to give more room. Italian colonies are not yet strong enough to more than get a living, and such is the case every season with me. Draw your own conclusions. Queens as good as the best, $1.00 each; $9.00 per dozen. Money-order office, San Angelo, Tex.; post-office, Vigo, Tex.

J. E. Chambers.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer. Ventura. Calif.

Queens

California

W. O. VICTOR

Price of Queens	1	6	12	25	50
Untested.........	$ 1 00	$ 5 00	$ 9 00	$16 50	$32 50
Select Untested...	1 25	6 00	11 00	20 00	37 50
Tested	1 50	8 00	15 00	28 00	50 00
Select Tested	2 00	11 00	20 00	37 50	70 00

Breeders, $3.00, $5.00, and $7.00, according to high points scored. . . 500 nuclei with young clover stock queens for sale. . . Shipment to begin May 20th.

Nuclei	1	3	6	12	25	50
1-frame	$ 1 65	$ 4 45	$ 8 65	$16 80	$33 50	$65 00
2-frame	2 40	6 70	12 40	23 80	46 00	90 00
3-frame	3 15	8 70	16 40	31 80	60 00	115 00
4-frame	3 75	10 50	20 00	39 00	75 00	165 00

If no queen is wanted, deduct 40 cts. from price of each nucleus. If untested queen is wanted, add 35 cts.; if tested queen is wanted, add 85 cts.

Formerly of **Wharton, Texas,** has moved his entire bee and queen business to **Hondo, Texas,** where he is now a member of a joint stock company.

The queen-rearing department of our company will be under the personal supervision of W. O. Victor. The same strain of bees and methods will be used that he formerly used in Wharton. We will confine ourselves to the **long-tongue clover** strain of three-banded Italian bees, as we consider them the **best all-round bees on earth.**

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PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and, being long-tongued, best honey-gatherers. **Prizes**—VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U. S. A., 1904. **The Highest Award.** Extra select breeding queen, $3.00; six, $16.00; dozen, $30.00. Selected queen (young tested), $2.00; six, $11.00; dozen, $20.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

Anthony Biaggi,
Pedeville, - near Bellinzona, - Italian Switzerland.

This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. In writing, mention GLEANINGS.

ITALIAN QUEENS.—Fine, northern-bred; originated from best long-tongued "Red-clover" breeders in the United States; work on red clover; bred in full colonies; under swarming influence; noted for their excellent honey-gathering, wintering qualities, and gentleness. Untested, $1.00; six, $5 00. Tested, $2 00; six, $10.00. After July 1st: 75c, $4.00, $1.50, $8.00. Satisfaction guaranteed. Write for full descriptive list.

Isaac F. Miller, R. F. D. No. 2, Brookville, Pa.

Italian Queens!

Carniolans mated to Italian drones. Select untested, 75c; 3 for $2.00. Tested, $1.00; 6 for $5.00.

George W. Barnes, 138 N. Pleasant St., Norwalk, Ohio.

FENCE STRONGEST MADE. Bull-strong chicken-tight. Sold to the Farmer at Wholesale Prices. Fully warranted. Catalog free

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Five Short City Blocks North of the C. & N. W. R. R. Passenger Station

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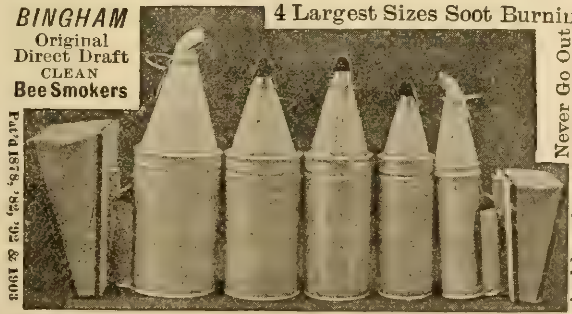

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And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c: 65c by mail on receipt of price.

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BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

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Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. Langstroth.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

Only 3 Cents per Packet **PARK'S SEEDS** ***Unsurpassed in Quality***

Have Stood the Test for 35 Years—Over 500,000 Satisfied Patrons Buy Them Yearly.

Don't pay fabulous prices for seeds, but send at once for Park's Floral Guide, for 1905, which truthfully illustrates and describes everything good in flowers. ***It will save you money.*** as it offers the ***Choicest Seeds at 3 Cts. per Packet***, including all the finer, newer sorts mostly sold at 25 cents. Unlike others, it is a practical guide to the culture of flowers. A postal brings it; also copies Park's Floral Magazine. **GEO. W. PARK, B 27, LaPark, Pa.**

FOR 2 STAMPS I'll include packet of New Nicotiana Sanderæ, Stokesia, Giant Pansy, Double Petunia, Cineraria, Cyclamen or Chinese Primrose or all (8 pkts, with books, culture and Park's Floral Magazine, a charming illustrated monthly, 1 year) for 20 cts.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee=keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey=boxes, Weed=Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

One of those nice flexible bee-hats included free with every shipment, if you will mention it in ordering, *telling where you saw the offer.* :: :: :: :: ::

The new edition of "A B C of Bee Culture" is now here, and is ready for immediate distribution. :: :: ::

I occupy 4892 square feet of floor space, which is constantly occupied with a stock of goods. Since January 1st the Root Company have sent me four full carloads of supplies and numerous local shipments with which to complete rush orders. These nice clean goods are stacked to the ceiling, and are ready for immediate distribution. Keep right on sending in your orders as I am prepared to handle still more business with my usual promptness. Other carloads are coming.

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I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

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For nearly 14 years we have published **The American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

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The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

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NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

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Send for Our FREE New Illustrated Catalog and Price List.

SPECIAL NOTICE

Special Notices By Our Business Manager

E. L. Pratt, of Swarthmore, Pa., writes us that his "ad." has brought him all the offers for help he can use.

BEESWAX MARKET.

We offer, till further notice, 28 cts. cash, 30 cts. in trade, for average wax delivered here. The prospect is that this price will not be good longer than three or four weeks, for by that time we shall be so near the close of the season that we usually mark the price down again.

The business heretofore carried on at San Antonio, Texas, under the name of The A. I. Root Co., Udo Toepperwein, Manager, will hereafter be carried on by Udo Toepperwein individually, he having purchased the entire stock of goods of The A. I. Root Co. Mr. Toepperwein is a hustling young business man, having built up a large trade in Root's goods, and will continue to handle them as in the past, but under his own name instead of that of The A. I. Root Co. We can assure our patrons that they will receive the same class of goods at equally low prices and the same treatment from Mr. Toepperwein as from us. We bespeak for him a successful business in the future.

The A. I. Root Co.

COMB-FOUNDATION MACHINES.

We now have in second-hand machines the following to offer. Samples of foundation made on any of these machines mailed to those interested.

No. 2132.—6x2 hexagonal extra-thin mill, fair condition. Price $10.00.

No. 014.—6x2 hexagonal extra-thin mill, good condition. Price $12.00.

No. 057.—6x2½ hexagonal extra-thin mill, good condition. Price $15.00.

No. 058.—6x2½ hexagonal thin-super mill, good condition. Price $15.00.

No. 055.—10x2 Pelham, nearly new. Price only $6.00.

No. 066.—10x2 hexagonal medium-brood mill, good condition, $14.00.

No. 070.—10x2 hexagonal medium-brood mill, fine condition. Price $15.00.

No. 071.—10x2, old-style frame, round cell, fair condition. Price $9.00.

SECOND PRIZE-PHOTO CONTEST.

Many of our subscribers could not take part in our first contest, as the time was so short, and it was the season of the year when good photos could not be obtained. Those who were fortunate enough to have pictures had an advantage. To give all an equal chance we have arranged our second contest to extend over the best time in the year to take pictures. Keep your eyes open for a good view, and when you have found it get a camera and you will have a chance to win one of our liberal prizes. It's a great satisfaction to have a good photo of one's bees, even though a prize is not won.

We offer the following prizes for different kinds of photos: Class A, photo of apiary. Class B, photo of comb honey. Class C, photo of any object of interest to bee-keepers, not included in two first classes.

Rewards:—Each class will be awarded a first, second, and third prize. First prize, winner will be allowed to select goods from our catalog to the amount of $5 00; second prize, same as first, except amount is $3.00; third prize, same as first, except amount is $2.00.

Conditions:—Contest closes Sept. 1, 1905. Contest is open to all ages, and limited to United States and Canada, as the foreign contest is still on. We suggest that photos of honey should show the product of one colony, and be arranged so as to expose the entire face of each section, similar to the photos often shown by Mr. Danzenbaker. If preferred, a select ten sections could be photographed, or any other idea may be used.

Photos should not be marked in any way, but your full name and address should be put on a separate sheet, and enclosed with photo, marked "for prize competition." Do not neglect this. Photos not winning a prize will be paid for according to the value to us, if we can use them. The prizes will be awarded with special reference to clearness of photo and artistic beauty and the instructive and interest-drawing power. No photo returned unless stamp is enclosed for return. Prize-winning photos are to become our property.

BABY NUCLEI, EQUIPPED WITH QUEENS, FOR SALE.

The baby nuclei having done so well in our yard, we have concluded that some of our subscribers might like to buy one or more of them with bees and a virgin of our red-clover stock, which virgin would, of course, be already introduced, and ready to mate with any drones that the consignee himself may have. Some years ago there was an attempt made to sell virgin queens, but it proved unsatisfactory owing to the difficulty of introducing these queens after they had been through the mails, and the business seems to have been given up entirely. But the new Swarthmore boxes of bees offer a solution to the problem, and at the same time enable one, if he has experience enough, to build each baby into a good strong colony. In view of the fact that there may be some of our subscribers who would like to cross their own desirable strains of drones with some of our choice virgins, we have decided to try the experiment of putting these baby nuclei on the market supplied with virgin queens. We shall be prepared to furnish these by June 1, supplied with about 200 bees, two sections of comb, six of which of the right size will fill a Langstroth frame and a virgin queen with the nucleus box itself, all complete for $1.50; or, when desired, we can substitute a laying queen for 50 cts. more, or $2.00.

Full directions go with each box of bees, so that even a beginner, if he pays careful attention to details, will be able to make a nice start with bees. Of course no one should think of ordering these babies unless he has already, or will have, full-sized Langstroth hives, for the little boxes will be so full of bees after the queen begins to lay that they will shortly need larger quarters.

How will you transfer these little frames into a big hive? Very easily. Take a standard L.-size frame, and cut out of the center of it a piece of comb as wide as the little nucleus frame is long, and reaching from the bottom to the top bar. In the space cut out, fit the two little frames, one above the other. Then set it down in the hive with the bees and queen. Place the full-sized hive where the baby originally stood, and contract the entrance down to the space of one bee. If you can give them a frame of hatching brood when the weather is not too cool, all the better. You will then have in a few days a nice nucleus with a queen from the Root Co.'s celebrated red-clover stock crossed with your own choice drones. If only one lot of drones are allowed to have access to the air, and all the rest are restrained by drone-guards, you can practically control the mating of your red-clover queen, with the result that you will have a strain of strong and vigorous bees with crossings that are not nearly related.

If any one desires a more expensive queen sent with the baby nucleus, the price of the nucleus alone will be $1 00. Pick out from the catalog such a queen as you desire, and we will make the introduction before shipment.

The baby nucleus offers the advantage that there will be no risk in introducing.

Special Notices by A. I. Root.

WINTERGREEN-PLANTS—NO MORE WANTED.

Many thanks to the kind friends who have responded so liberally in sending me the beautiful plants; but please do not send me any more until I know whether I shall succeed in growing them under cultivation.

WRITE PLAINLY.

A little time ago I think I said it was a part of my religion to read through very carefully every letter that is plainly intended for myself, and I am still trying to do this. But I wish to make a little protest against asking me to read letters written on coarse rough paper, with a poor pencil that will not make a black mark. In this age of the world, when it is so easy to have good writing material, even if you do not use a typewriter, it is uncivil and unbusinesslike to ask anybody to go through several pages of matter poorly written, that takes valuable time to get at the meaning. I am not so particular about spelling or plain writing. There are people whose advantages have been such, or who write so seldom, they have but little practice; but I am sure every man, woman, and child can afford a tablet of smooth white paper, and a pencil that will mark black. Pen and ink would be better, but a good many times these are not handy. Occasionally I have letters so faulty in the above respects that I have to ask an expert clerk to go through it first so as to assist me when I try to read it myself.

The above was suggested by a letter just put in my hands. It commences: "Will you favor me by carefully considering this letter?" It would be much easier for me to give this "careful consideration" to the several large pages had the writer used a pencil that would *mark black*, and used it on smooth white paper.

SENDING THINGS FREE OF CHARGE, ETC.

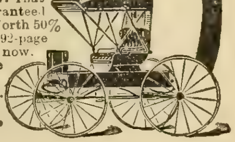
Some time ago one of our bee-keepers advertised a sample of his honey, free of charge. He gave away a great number of samples, paying postage himself, but did not get an order. Now, you need not suggest that his honey was poor, for it was quite the contrary; but there are so many thoughtless people who are always ready to take samples, especially if they do not cost any thing, that I think it an unwise proceeding. The medicine men seem to make it go very well; but they usually have some medicine that stimulates, and gives the invalid temporary relief; and when these doctors "get a bite" they usually get money enough to pay for all the free samples. There is no such profit in honey. You had better ask for five or ten cents to pay postage, then you will not be liable to be troubled unless there is some prospect of their becoming customers.

A few weeks ago one of our good friends who wrote about apples offered to send scions free of charge. He got a great lot of applications, many without even postage. One man sent five two-cent stamps, but requested the return of all the stamps that were not used to pay the postage. My apple friend did not tell me this, but I got hold of it indirectly. Now, when you trouble a busy man for something he does not keep for sale, be sure you send postage and a little more; and when advertising something that you have for sale, I think it would be wise to charge enough, even for samples, to cover postage and a little more, then you will not be troubled by people who have no thought of making a purchase.

THE MAN WHO ADVERTISES TO SELL YOUR PROPERTY, NO MATTER WHERE IT IS LOCATED, ETC.

We have twice before alluded to this gentleman and his advertising. We now clip the following from the last *Rural New-Yorker:*

> The postoffice authorities are now investigating the business methods of W. M. Ostrander, a real-estate agent of Philadelphia, Pa. Mr. Ostrander charges an advance fee for listing and advertising property offered him for sale. The postal authorities, it is said, have sent out 1000 letters to his clients, asking for statements of their dealings with him, and hundreds of replies have been received. We are advised that statements of clients are invited generally by the inspectors. They should be mailed to Postoffice Inspector Morse, Philadelphia, Pa.
>
> Some time ago we stated our reasons for refusing the advertising of real-estate agents who charge an advance fee for listing properties for sale, and urging remittances by telegram, thus giving the impression that a purchaser is in prospect, when, as a matter of fact, no such customer is in sight. The postal authorities are acting promptly, and you will aid the inspectors by sending a statement of your experience to the inspector.



$52.50 Rubber Tire TOP BUGGY. 2 year guarantee. Sold on 30 days Free Trial. It's a genuine **Split Hickory.** That means value. Guaranteed solid rubber tires. Worth 50% more than we ask. 192-page catalog free. Send now.

The Ohio Carriage Mfg. Co.
H. C. Phelps, Pres.
Station 293,
Cincinnati, Ohio

DANZENBAKER HIVE

"**Facts About Bees,**" a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. **Send for it.**

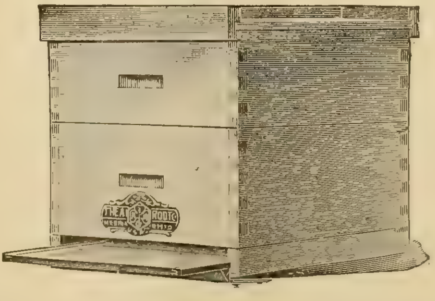
THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.
You can produce better-looking honey.

QUANTITY.
You can produce more of it.

PRICE.
You can get more per pound for it.



THE A. I. ROOT CO. MEDINA, OHIO

Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

The A. I. Root Company, - Medina Ohio.

Carniolans a Specialty!!

ALSO breeders of Golden and Leather Italians. One untested queen, $1.00; six for $5.00; twelve for $9.00. Tested, $1.50. Best breeder, $3.00. Best imported, $5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free.

Carniolans.—We have bred this race of bees for twenty years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness. **Golden and Leather Italians.**—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co. : Lake George, N. Y.

Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight. **The Bee & Honey Company, Beeville, Bee Co., Texas.**

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

Of the highest standard bred from our superior Golden and Leather Italian stock. Gray Carniolan queens mated to Italian drones. Our colonies with these queens reared last season have from three to four frames of brood now. All queens are large and fine.

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

Red-clover : and : Italian : Queens

Untested, 75c; $8.00 per dozen. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

E. E. Lawrence (Box G 28), Doniphan, Mo.

Breeder of Fine Italian

QUEEN BEES. Send for price list. Local agents for Root's goods. . .

GOOD : QUEENS

Now ready, at $1.00 each; tested, $1.50; golden stock.

J. B. Case, Port Orange, Fla.

Do You Need Queens?

The Best Queens by Return Mail!

We can fill your order. Our strain of three-band Italians are fine honey-gatherers; queens large and prolific; satisfaction guaranteed on every queen. Send for list. Untested queens, 75c; $8.00 per doz.; tested, $1.00 each.

J. W. K. SHAW & COMPANY
Loreauville, Iberia Parish, Louisiana.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

H. C. SIMPSON, CATAWBA, S. C.
MANUFACTURER OF AND DEALER IN
BEE-KEEPERS' SUPPLIES
and Breeder of Italian Bees and Queens.

A LARGE STOCK OF HIVES

ON HAND--OVER 2000

So you see we can fill orders promptly. Sections nearly a million. Our storehouse in Syracuse will hold 20 carloads of bee-supplies —send in your order for anything needed. If you have any wax we will allow you prices quoted in GLEANINGS from time to time. We take it any time of the year.

THE A. I. ROOT COMPANY
SYRACUSE - - - - NEW YORK

Standard
POULTRY and
BEE SUPPLIES

The best of every thing for the Poultry and Bee Keeper.

◆

Freight Rates From Toledo are the Lowest.

BIG DISCOUNT for EARLY ORDERS

◆

Sixty-page Illustrated Catalog now ready for distribution. Send your name for one.

◆

GRIGGS BROS.
523 Monroe St. TOLEDO, OHIO

DON'T
WAIT

Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

Root's Goods
AT
Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ .˙ .˙

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

.....Special Notice to Bee-keepers.....

BOSTON

Money in Bees for You.
Catalog Price on

Root's Supplies

Catalog for the Asking.

F. H. Farmer, 182 Friend St. Boston, Mass.
UP FIRST FLIGHT

Root's Bee Supplies

at Root's prices, but at Baltimore instead of Medina. Send us your orders, and save time and freight. Large stock—prompt shipment.

RAWLINGS IMPLEMENT CO.

Wholesale up-to-date Farm Implements and Vehicles,

209 S. Charles St., Baltimore, Md.

We didn't burn out.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. .˙ .˙ .˙ .˙

Bees and Queens
from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

Dadant's

Foundation

It excels. We guarantee satisfaction. . . . .

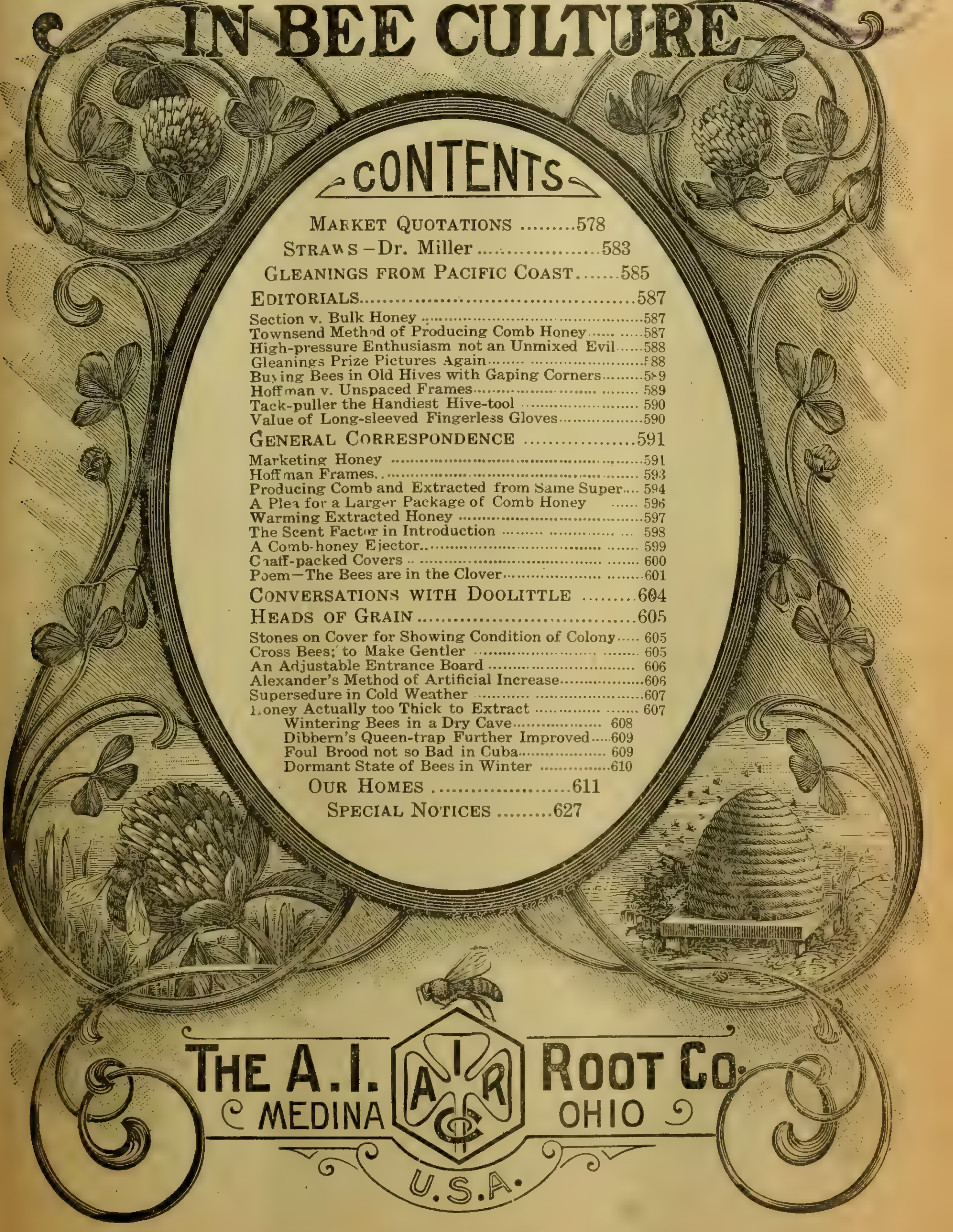
Bee-supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII JUNE 1, 1905 Number 11

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER

Western Michigan

Root's Goods at Root's Prices.

I HAVE the largest stock and a full line of Root's goods, and can ship promptly. Don't put off your orders until you want the goods, and suffer loss and annoyance because they don't arrive in time to get the best results. My 36-page Illustrated catalogue will be sent you free for the asking, and a full description of the HILTON Chaff HIVE and SUPERS, with a comparison made by Michigan State Agricultural College, between the single and double walled hives, all free for the asking. ❦ Cash or goods in exchange for wax. ∴ ∴

GEO. E. HILTON,
Fremont, Mich.

Lewis' and Dadant's Goods

Big Stock -- Prompt Shipments

Best Shipping-point in Michigan.
Direct Lines to all Parts of State.

BEESWAX WANTED.

A. G. Woodman Co.
Grand Rapids, Mich.

HIVES, SECTIONS
FOUNDATION

We have a complete stock of **Root's Goods for Michigan Bee-keepers** and now is a good time to place your order. ❦ Our catalog for the asking. ❦ Beeswax wanted. ❦ Remember the Danzenbaker hive, the comb-honey hive.

M. H. HUNT & SON
BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

COMPLETE STOCK FOR 1905 NOW ON HAND.

Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Philadelphia.—The season is about over for the sale of comb honey, with so few sales that the market is not established enough to quote prices. Extracted honey has met with some demand, and we quote as follows: white, 6@7; amber, 5½@6. Beeswax, 28. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
May 22. 10 Vine St., Philadelphia, Pa.

Buffalo.—Demand for No. 1 to fancy-comb honey is selling well. Dark comb and extracted are not selling unless the price is very low. We quote fancy white comb, 12½@13; A No. 1, 12@12½; No. 1, 12@12½; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 9@10; No. 2 dark, 8@9. Extracted, white, 6¾@7; amber, 6@6½; dark, 5½@6. Beeswax, 28@30.

W. C. Townsend,
May 22. Buffalo, N. Y.

Boston.—Our honey market continues very dull, with very little movement to be noted. We quote fancy white, 14; No. 1, 12½@13. Extracted, 6@8, according to quality.

Blake, Scott & Lee,
May 23. 31-33 Commercial St., Boston, Mass.

Denver.—Demand for both comb and extracted very light. No. 1 white comb, per case of 24 sections, $2.20@$2.40; No. 2, $1.75@$2.00. Extracted, 6½@7½. Bees-25@26.

Colorado Honey-producers' Ass'n,
May 20. Denver, Colo.

Cincinnati.—The large stock of comb honey yet offered with hardly any demand causes lower prices. I quote fancy water white at 12; other grades lower in proportion. Extracted is in usual demand for this season of the year. We quote white clover, 7@8; amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28.

C. H. W. Weber,
May 18. 2146-8 Central Ave., Cincinnati, O.

Kansas City.—The honey market here remains from $2.25@2.50 and fairly good demand, and it looks now as if new honey would start in at about $2.50; amber about 50c less. Extracted honey selling at from 5 to 6. Beeswax, 28.

C. C. Clemons & Co.,
May 19. Kansas City, Mo.

Chicago.—The honey market is one of exceeding quietness, especially so in comb—there not being enough sold to make an impression on the light supply now here. Extracted is also in the same quandary, with unchanged prices. Beeswax sells upon arrival at 30c.

R. A. Burnett & Co.,
May 18. 199 South Water St., Chicago, Ill.

Wanted—Beeswax. We are paying 28c cash or 30 atnts per pound in exchange for supplies for pure av-Ciage wax delivered at Medina, or our branch houses ce 144 E. Erie St., Chicago, 44 Vesey St., New York erty, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

The A. I. Root Company, Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. Udo Toepperwein, San Antonio, Texas.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

Wanted.—500 pounds fancy clover comb honey; cash; Michigan preferred. W. D. Soper, Jackson, Mich.

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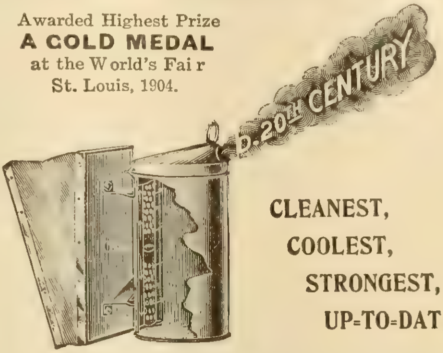

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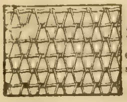

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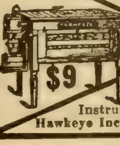

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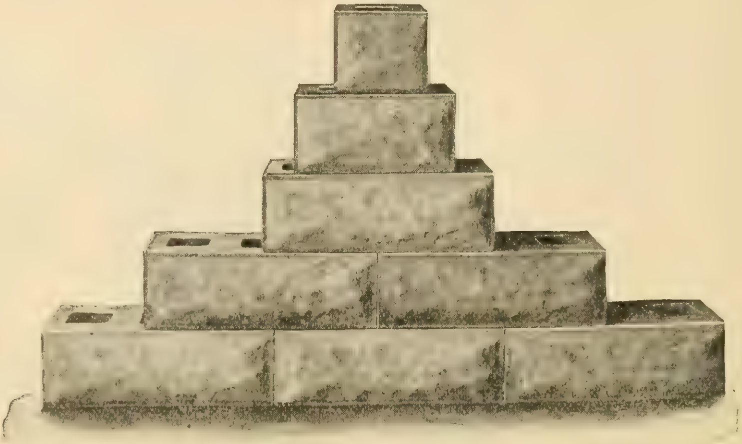

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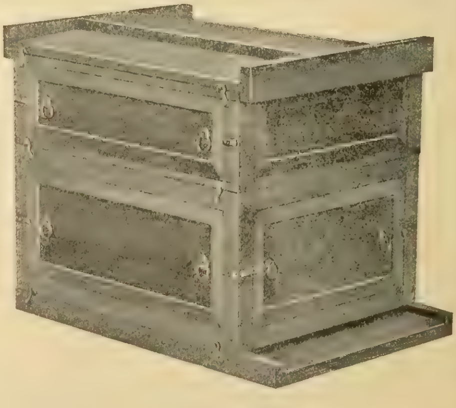

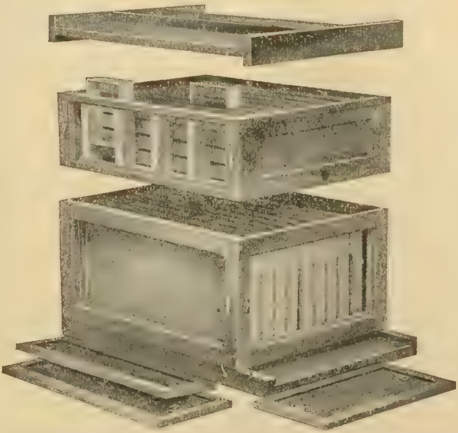

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so that it will rest upon its back end, use a little smoke along the lower edges of the brood-combs, and it is an easy matter to determine if the bees are building queen-cells and getting ready to swarm. The only difficulty in this performance is that the supers are likely to slide off, but Mr. F. G. Cyrenius, of New York, has invented a simple, cheap clamp that can be put on the hive in five seconds, no matter how many supers there are on it, and it will hold the supers on so securely that the hive might be rolled about the yard without their coming loose. By this arrangement it is an easy matter to examine 100 colonies in an hour. This device is illustrated and described in the Bee-keepers Review for May.

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TO THE EDITOR OF AMERICAN GARDENING:

In your issue of June 18, on page 399, I notice a good article on the Colorado Beetle or Potato bug. For the benefit of your numerous readers I would advise them to try **Hammond's Slug Shot.** I have used it here this season with excellent results, on Potatoes, Egg Plants, Cucumbers, and Squash, for Potato Bugs and, also, for Striped Beetles, and it is the best remedy I know of, simple and effective. I purchased two of the **Dusters** which he advertised in your paper, and they are very useful articles. The best time to dust the plants is early morning, as the substance adheres much better when the dew is on. A light dusting is sufficient, and woe betide the bugs or the larvæ. Once they get a taste of it they shrivel up right away.

GEORGE STANDEN, Gardener to Col. D. S. Lamont, Millbrook, N. Y., 1904.

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

Vol. XXXIII. JUNE 1, 1905. No 11

Stray Straws

By Dr. C. C. MILLER.

J. A. GREEN says, page 526, that the nearer sections "approach a pound in average weight the greater will be the variation in individual weights." That's new; I wonder if it's true. [Mr. Green is not far from the truth.—ED.]

"HAVE YOU EVER seen laying workers in the act of laying?" page 548. I never saw but one at the business, and that was laying in a worker-cell, and its wings were pushed up about its head in a very uncomfortable manner. I suspect that's the reason why laying workers show such a decided preference for drone and queen cells.

D. R. WAGGONER, page 547, nails two short strips on the upper side to direct the bees to the Porter escape. The editor amends by having four strips, one from each corner. Let me amend the amendment: Let the four strips come from the middle of the sides and ends, instead of from the corners. Less wood, and less distance for the bees to travel on the strip. But I suspect the Waggoner plan is just as good as either of the amendments, and simpler.

LATELY I met a man who had had honey from me, and he seemed to think that the one honey-leaflet I put in each shipping-case was not enough. I suspect he was right. [Right here is a good suggestion. A large number of bee-keepers have quite a quantity of honey-leaflets left. It is not a bad idea to put half a dozen copies in each shipping-case of honey. This leaflet tells the truth about honey, and denies the canard about manufactured comb honey.—ED.]

THE WORST TIME in the whole year to let bees run short of stores is, perhaps, at the time of the usual beginning of the honey harvest. It may mean the cessation of brood-rearing; and not only that, but the destruction of all unsealed brood. Don't trust entirely to the fact that there are plenty of flowers. Sometimes there is abundance of bloom but no nectar, and the first intimation that any thing is wrong is seeing the white skins of larvæ thrown out at the entrance.

J. A. GREEN says, page 525, "My experience is that a shaken swarm to which a frame of brood has been given is much more apt to swarm out than one hived in an empty brood-chamber." I wish he would tell us whether they swarm out the first day or after several days. Mr. Stachelhausen is authority on shaken swarms, and I believe he gives a frame of brood because it holds the swarm; but then he takes it away in two or three days, because, if left, the bees start queen-cells on it.

THE SEASON was unusually early, but there has been so much cool and wet weather lately that the bees have been kept in their hives much of the time. It doesn't seem to make much difference as to brood-rearing, the colonies seeming to increase in strength right along, but it makes it necessary to keep watch for fear the bees run out of stores. [While the season has in one way been unfavorable for bees it has not cut down brood-rearing to any great extent, if at all, except in the case of weak colonies. The great amount of rain has put the ground in fine condition for a heavy blooming of clover everywhere. Even if we should have a drouth from now on, it probably could not affect very much the clover crop in this locality, for the ground is thoroughly soaked—a condition which I presume is largely true throughout this clover belt.—ED.]

A POUND SECTION is one of such measurement that the bees will always put into it just enough honey to make it weigh exactly a pound. There is no such measurement; so J. A. Green is exactly right when he says, page 526, "The pound-section idea is a delusion and a snare." [Let me see. If my recollection serves me right, there used to be a chap up in Northern Illinois who argued strenuously for sections holding a full pound because the public expected a section to weigh that much. Now, if a pound section practically does not exist, and never did, what is the wrong in selling sections by the piece? If we try to give a pound size we can not supply it, if your statement is correct. Just tell that man why he has been following a will-o'-the-wisp. Perhaps you know him.—Ed.]

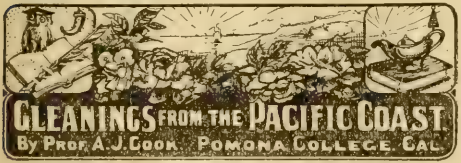
"Look out for number one." That's all well enough; but I tell you the man who wants all the happiness to be got out of this life needs to do a lot of looking out for others. The chauffeur who recklessly rides over people and frightens teams brings into disrepute the army of good people who ride in automobiles. The few evil-minded sluggers who are killing people in the Chicago strike are bringing into disrepute the whole scheme of organized labor. The man who puts on the market unripe extracted honey is doing a wrong to every honest man who produces honey. [Just so. I am not sure but we ought to keep harping on this subject during the entire marketing season. The trouble is, the chaps who unload their bad stuff are just the ones who do not read the bee-papers. It would, perhaps, be well for bee-keepers to buy up some of these odd lots in order to prevent their getting on the market at all, either to depress prices, or, worse still, disgust the whole trade with any kind of honey.—Ed.]

Experiments reported in *L'Apiculteur* showed that a swarm of 20,000 bees builds about 1000 grams of comb in the first four days. Estimating three-fourths of the bees at work secreting, that makes each bee secrete .0000376 of a pound of wax in a day. At that rate it would take a bee 26,595 days to secrete a pound, or 26,595 bees to secrete a pound in one day. [These are interesting figures; but another set of experiments might show quite a wide variation from these, owing to different conditions. Different experimenters have arrived at widely different results as to the number of pounds of honey it requires to make a pound of wax, the highest figures being 20 lbs., and the lowest between 5 and 6. But for all that, the general average of experiments of late has been between 6 and 7 lbs. It would be interesting to know how near the figures you furnish are to the general average. Perhaps the new apicultural department at Washington, with its fine corps of workers, will be able to eliminate many of our guess approximate figures, and substitute therefor those that are reasonably accurate.—Ed.]

The suggestion, page 547, to close out in the fall by having the super only partly filled with sections, is a good one for those who have the time for it. But if any are going to try it, they needn't go to the trouble of having dummies to fill the empty space. I know, for I've had hundreds of sections finished out without any such dummies. A row of six sections, or two rows of six sections each, with little boards to cover the unused portion of the bottom of the super—that was all. One might think that the bees, having free access to the empty part of the super, would cluster and build there, but they never did. But, mind you, that's toward the end. [You are right, doctor. I now recall that I saw in your yard little pieces of board that covered up the space not used in the super, and I have seen the same thing in a good many yards since. It is not necessary, at the close of the season, to have a dummy to shut out the bees from every cubic inch of unoccupied space.—Ed.]

Formalin was reported an utter failure in disinfecting foul-broody combs, at the Ontario convention, and Prof. Harrison said it had been learned that, for success, there was needed a low temperature and a moist atmosphere. He advised spraying or sprinkling the combs, or dipping them in water, and then, after the gas was generated, they should be left in the tight box 12 hours.—*Canadian Bee Journal*. [I take it that formalin was not a failure when conditions were favorable—that is, when there was a moist atmosphere and a low temperature—just how low a temperature is not stated. As a general thing, the reports from subscribers who tested the drug were unfavorable. Until our scientific men can discover a process by which it can be administered without a chance of failure the average bee-keeper had better let it alone. During the early part of last year we advised many of our subscribers to disinfect hives and suspected combs with formalin, but in no case to depend on it in case of foul brood when known to be actually present. So far the reports regarding the McEvoy treatment have been uniformly favorable—that is, shaking the bees on frames of foundation, or starters, rather, and then giving them a second shaking after the first foundation is partly drawn out, putting the bees on other frames of foundation.—Ed.]

The tendency is to get away from simplicity. Each bee-keeper, especially if a beginner, is likely to think of some attachment to his hive by which a certain point is to be gained. He submits it to friends—perhaps to those with less experience than himself—and they strengthen his belief that he has made a great step in advance. Then he sends it to a bee-editor. The bee-editor says it has good points; but he doesn't always have the heart to add, "But the cost and disadvantages overbalance the advantages." And then for the rest of his natural life that bee-keeper wonders why in the world the bee-keeping fraternity are so blind that they do not all adopt his improvement. In the majority of cases, when an improvement is sent to the editor of Gleanings, his easiest and most truthful answer would be, "It isn't worth while." I give him great credit for coming as near to it as he does. [Thank you. When an idea has absolutely no merit whatever, in my opinion, I do use rather plain and direct language, *but* writing a *private* letter, telling the would-be inventor that he had better waste no time on that idea, adding either that it is old or why it is impracticable. It would be cruel to tell him so publicly. Where an invention, on the other hand, has some merit, or whenever one without value is being continually invented by every new enthusiast who imagines he has a fortune in it, I bring it before our readers. If it belongs to the first class I say so; if not, I let our correspondent down as easily as possible, yet in language plain enough so that the average bee-keeper will not be wasting time on the same thing. It almost makes the heart of a bee-editor ache to see the number of ideas that are being submitted almost weekly on bee-feeders. Applications for patents for feeders are going into the Patent Office one after another. I try to tell all our feeder friends that the very best bee-feeder in the world, if covered by a patent, would not net him in royalties enough, perhaps, in five years to cover the cost of the patent. The reason is, every one can make his own feeder at practically no expense, and almost as good as the best, with a tin pan and a piece of cheese-cloth. He can even make an entrance feeder out of a Mason jar and a collar-box. He can copy any of the feeders in the catalogs, making his own at comparatively small expense. On the other hand, a bee-smoker is an indispensable article that can not be made with the materials around home, and any slight real improvement on it may be worth patenting.—ED.]



GLEANINGS FROM THE PACIFIC COAST

By PROF. A. J. COOK, POMONA COLLEGE, CAL.

ORANGE HONEY.

I predicted in one of my notes of a recent date that the coming season would be exceptional in the amount of honey produced in Southern California. This prediction is already being realized. I have heard several accounts of prodigious yields from orange-blossoms. It is true of orange-blossom honey, as of fruit honey in the East, that we usually get very little. This is to be regretted; for, like fruit honey, orange honey has superior excellence. We are not surprised at this, because the flavor would be indicated somewhat by the odor; and if there is any thing sweeter than the perfume from an orange-grove it has not yet been found. I think the reason we do not get more honey from such sources is simply that the colonies of bees in the apiary are not very populous at the early season of fruit-bloom. That is certainly true at this season in California. The very fact of no honey-gathering last year tended greatly to depopulate the hives. Hundreds of colonies have died of starvation. Other hundreds are certainly very weak. Indeed, unless stimulative feeding has been practiced (and this is not at all general), nearly all colonies are weak. Does this not argue, then, a profusion of nectar that bees are gathering quite largely of this orange-blossom honey? We should be sure that this was in profusion from the very intensity of the scent, which fills the whole atmosphere at this season of the year (May 1). In examining orange-blossoms I have seen the nectar in such quantities that I was reminded of the linden bloom in my old native State of Michigan. I believe that this orange-blossom honey can not fail to give us a reputation, so much of it is being produced at the present time.

YELLOW-JACKETS.

Miss C. asks what relation the wasps are to bees, and whether there are any points of resemblance between them. The yellow-jackets are well named, for nearly all of them are brightly striped with yellow. They are very compact, trim insects, and always have very small tapering waists. I have never heard that they practice tight lacing, but appearances would suggest as much. The true yellow-jackets belong to the family *Vespidæ,* and are known as the paper-making wasps. As they construct nests often of large size, this name is very appropriate. This paper evidently comes from wood pulp, and so insects invented paper from such material long before man did. The bright, trim, shining appearance of most of these yellow-jackets makes them very attractive, and, except for the keenness of their sting, they would certainly be greatly admired. Indeed, as with our bees, this sting is much more dreaded than need be. Like bees, if well treated these vespids will rarely sting. One year I had a great big nest close beside my front steps. I never disturbed the wasps, and they never attacked me. I often sat down close beside them and watched their interesting maneuvers at close range. I often wondered if they had not learned me. I think this was not true, as I often induced my company to observe as I had done, and they always came away unharmed. I think my kind treatment gave the wasps confidence. As all know, the cells of their nests are much like the same in the honey-comb in form and size. The comb, however, if we may call it comb, is horizontal instead of vertical, and so the cells are vertical, not horizontal. To answer Miss C.'s question, there is much in the natural history of these wasps to remind us of bees. We have here the three forms—queen, males, and workers, and the males are agamic as are drone bees. They mate on the wing, probably but once, and the workers continue to increase in number during the season. I think, too, none but the queens live over the winter in many sections of the country. Like bees they are social. The food of these wasps, however, is quite different from that of bees. True, they gather nectar, and frequently repair to the brookside where they may slake their thirst; but the proteid part of their food is not pollen, or bee-bread, but consists of insects. In sooth, these wasps are great friends. They are predaceous, and often destroy great numbers of our most harmful insects. I have seen the larvæ of the currant saw-fly destroyed in great numbers by yellow-jackets in Michigan. I have also noticed our California yellow-jackets very active in destroying caterpillars of the army-worm moth, *Peridroma saucia*.

I think the word *hornet* is the term often applied to these vespids, or paper-making wasps. Indeed, one large species, *Vespa maculata*, is very common in Ohio, Michigan, and other eastern States. As a boy I knew this as the white-faced hornet. It has a powerful sting, but is not likely to use it unless provoked. These wasps help us to rid the house of flies.

In this connection it may be said that nearly all insects of the great order *Hymenoptera* (the order of the honey-bee) are our good friends. As we know, bees do great good in pollinating flowers. Even the wild bees, many of them solitary, not social, aid not a little in this good work. All the wasps are good friends, as just explained of the vespids. There are four great families of hymenopterons that are almost wholly parasitic. Of these are the chalcid and ichneumon flies. These are so tremendously our friends that I really think agriculture would be almost impossible without their valuable aid. I think the ants may be said to be our friends, though they are often annoying, and in rare cases do no little harm. Gall-flies, while they produce the oak-apples, really as a general thing do little harm, while they give us an important element in indelible ink. Of course, the bees are the greatest benefactors, as they hand over to us the delicious honey and the valuable wax, while their work as pollinators is great beyond compare. This leaves the saw-flies as the only family which may really be said to be grievous pests. The joint-worms in wheat, and the xylocopa bees, are black sheep of their families.

THE BLASTOPHAGA.

I wonder if it is generally known what a blessing we have in a little chalcid fly which is brought all the way from Persia. It is a very minute insect, and is often referred to as the fig-wasp. As we all know, the Smyrna fig has rare excellence. While we have just the right climate and soil for fig production, we have until lately utterly failed in producing the Smyrna figs. It was found that in Smyrna these figs could not be produced without the little fly, and that these flies bred only in another kind of fig, the Capri fig. At the proper time, branches of the Capri fig were hung in the Smyrna trees. Through the kindly office of our splendid Department of Agriculture these blastophaga were introduced into the fig-orchards of our State, and to-day we are producing Smyrna figs which are unexcelled in amount of production and excellence of quality. Here again, then, we have an example where the importation of a tiny insect has led to great economic results.

GOLDEN ANNIVERSARY.

I can not say golden wedding, but it is worthy of remark that this is the fiftieth year since alfalfa was introduced into California. As we all know, alfalfa is not only a remarkable honey-plant, but as a forage-plant it is absolutely incomparable. Who knows of any other plant that produces six or seven crops, possibly ten, a year, and they, too, not light but bountiful? I think it is possible, under the very best of circumstances, to get well nigh twenty tons per acre of alfalfa in a single season. Thus we have, in this, more than the equal of red clover, and for the bee-keeper it is far superior. Like all the legumes, alfalfa enriches the ground, snatches nitrogen from the air, and combines it, through the aid of bacteria, that it may be utilized for the host plant. It is thus a most valuable fertilizer. By aid of the government-bred bacteria this crop is now being grown in all the Eastern States. While it can not be grown east as in California, yet it bids fair to more than rival red clover, even in the East.

Pickings from Our Neighbors' Fields BY "Stenog."

A few drops of gasoline will remove propolis from the hands. Kerosene is as good, cutting all waxy substances instantly.

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On page 355 I made mention of the Baldensperger family, the father of whom went to Palestine many years ago and established bee-keeping there on a scientific basis, although his chief aim was mission work, which he carried on for 44 years. Some 20 years ago one of this family, Ph. J., enlivened these pages very often with articles from his pen. So far as I can remember, the silence has been broken but once, and that to announce the drowning of a brother in the Mediterranean, at Joppa; and now a postal comes announcing the death of another brother, C. H., in Jerusalem, Jan. 27. He was buried on Mount Zion, the ancient city of David, probably the most celebrated piece of ground between the two poles of the earth. Mr. Baldensperger says he has one more brother in Jerusalem, named Emile. Ph. J. himself now lives in Nice, France. Few people have succeeded in doing more for the improvement of an established branch of agriculture than this Alsatian family. It is not too much to hope to hear from Mr. B. again.

☞

All are familiar with the methods employed in evaporating the water from the juice of sugar-cane in vacuum. In this way the water is forced to leave the solid parts in a remarkably short space of time. Some time ago a foreign journal, not now within my reach, suggested this principle for thickening green honey; and my impression is it was claimed the experiment had been tried with success in Europe. Probably the drawback will be the cost of machinery compared with the value of the product; and perhaps too much heat would be necessary. Sure it is, however, that more attention must be paid to this matter of ripening if extracted honey is to take the place in the markets that it should.

☞

The *Literary Digest*, in making a review of a book of poetry written by Mad. Cawein, speaks of him as a poet of nature, and gives the following, which is the first stanza of one of his poems:

> Bee-bitten in the orchard hung
>   The peach, or, fallen in the weeds,
> Lay rotting where still sucked and sung
>   The wild bee, boring to the seeds
> That to the pulpy honey clung.

Such stuff will account for the many false ideas entertained by the public concerning the bee. Just think of a bee biting into a peach when it can do nothing of the kind! But the climax of the joke is reached when we are called to watch a bee making its way by boring into a rotting peach lying on the ground. The whole thing is as untrue to fact, and hence to nature, as any thing can possibly be. It is still true of many people, even in this advanced day, that they have eyes, but see not.

☞

The *Progressive Bee-keeper* has a very sensible editorial in reference to Gov. Folk's veto of the foul-brood bill in Missouri. From it I make the following extract.

> The Governor says in his message that "Any one intelligent enough to conduct a bee industry is certainly better qualified to attend to them and manage his own business than any State Inspector could possibly be.'
>
> If Governor Folk's nearest neighbor had smallpox in the house, and some morning when he sat down to breakfast the said neighbor should step in and say, "Hello, Governor! Can I borrow your bucksaw a little while this morning?" I wonder if he could see the wisdom of a quarantine law. However, this only goes to show that a man may be wise enough to be Governor of a great State like Missouri, and yet be densely ignorant in some things. By the same kind of reasoning we might say any one who is intelligent enough to have a large family is certainly better qualified to administer to them in case of sickness than is a first-class physician. There would be fully as much horse sense in this kind of assertion as there is in Governor Folk's excuse for not signing the bill.

Gov. Folk's reasoning would be just as applicable if he were called on to sign a law to stamp out rinderpest, anthrax, tuberculosis, and other contagious diseases peculiar to cattle and swine. Experience shows that many men will not move, even in their own interests, unless prodded by the law, It's a little strange, too, that Gov. Folk was not influenced by the action of other States that have strict foul-brood laws.

Editorial
By E.R. Root.

REPORTS WANTED OF THE NON-SWARMING METHODS.

Gleanings will be very glad to get reports concerning any of the late non-swarming methods that have been advocated in these columns, especially the Sibbald and modified Sibbald plan, and the Alexander method of keeping down increase, and then producing large quantities of honey. With our nearly 20,000 subscribers we are able to test out any plan that has merit, and render a report in a few weeks.

SECTION V. BULK HONEY; AN IMPORTANT QUESTION.

A good article by Mr. Weaver, in this issue, will furnish food for thought. The question is, in view of stagnation in prices, "Are bee-keepers making a mistake in running so much of their comb honey in packages as small as one pound?" Would it be better if some of it were sold in larger packages to the local trade, say in five or ten pound lots? Or, to put it in another way, would not the consumer buy fifty cents' or a dollar's worth of honey the same as he does sugar, as quick as he would a paltry twenty cents' worth, *providing he understood* he was buying the larger amount at *wholesale*, and enough to last his family a good long time? The growing scarcity of suitable section lumber may force all comb-honey producers to adopt some other plan of marketing in the future. If so, we may as well begin to face the problem *now*.

TOWNSEND METHOD OF PRODUCING COMB HONEY; ITS POSSIBILITIES.

The reader's attention is particularly drawn to the article by E. D. Townsend, p. 594, on the production of comb and extracted honey from the *same super*. The writer outlines a plan whereby swarming may be controlled, bait sections dispensed with, and unfinished sections eliminated entirely. At the end of the season the bee-keeper will have a lot of finished sections, and, instead, what would otherwise have been unfinished sections, a lot of fine shallow extracting-combs. A feature that will commend itself particularly is the one whereby swarming, so easily controlled in the production of extracted honey, can be almost as readily controlled in the production of comb honey, *a la* Townsend. The one great drawback to the production of comb honey has been swarming. Well, now, if we should combine the Sibbald or any other good non-swarming plan with the Townsend, of producing *both* comb and extracted in the *same super*—well, it seems to me we shall almost reach the millennium of comb-honey production, providing — *providing* — we can get a fair price for our honey. Happily, a well-concerted effort is being made at this problem.

Already the year 1905 has been noticeable for bringing to light some excellent non-swarming plans as given in our late issues, and now we have before us a comb-honey plan that looks as if it might have very much merit.

Now, let us not rise up and decry the plan by calling it old and worthless, but let us give it a trial in this year of our Lord 1905, in connection with all other late ideas that have been promulgated.

HIGH-PRESSURE ENTHUSIASM NOT AN UNMIXED EVIL.

The criticism may possibly be made that the editor of Gleanings is liable to be too enthusiastic over any new fad. Editorial utterances regarding some new or semi-new practices advocated in this issue might give ground for this; but if the reader will pardon the egotism which prompts the statement, he will recall that many of those so-called fads over which the writer of these lines has become enthused are not now fads or untried theories, but practical, working realities, bringing a large measure of success. At one time your humble servant was very enthusiastic over fixed spacing for frames, even when most of the bee-world considered them a nuisance. The principle is getting to be now all but universal in modern bee-keeping, although the editor was severely scored at the time for helping to push the "heresy." Fences and plain sections, thick top-bars, lock-cornering in hives, wide entrances, copious ventilation in bee-cellars, shaken swarms, etc., are not now untried theories but working realities.

Coming up to the present time I verily believe that some of the late non-swarming methods that have been advocated in these columns, and the Townsend method of controlling swarming, as enunciated in this issue, are two more fads, if you please, that will mean many dollars to the bee-keeping craft.

Now, having said this much I do not mean to imply that my enthusiasm has *never* been misplaced—far from it; but sometimes, in order to make a thing *go* we must take on a *full head of steam*. If that full head will not make it go, there is something wrong with the thing itself. But if that thing is all right, the high pressure will push it forward as perhaps nothing else will, even if (to carry out the figure) the boiler is a poor one and does sometimes spring a leak and dampen some other fellow's equally meritorious ardor, for there is a host of other people who know a good thing when they see it, and there are plenty of chaps like the editor who are so dumb as to fail to grasp it.

GLEANINGS PRIZE PICTURES, AGAIN; BEE-TREES, AND COMB-SPACING IN NATURE.

By some misconnection the third-prize pictures reached us before the second. On p. 602, '3, in this issue, we present two photos. In the opinion of many of our subscribers these might rank ahead of the first-prize picture given in our previous issue. And that leads me to say that they were awarded the prizes by a special committee in The A. I. Root Co.'s general office. The firm, much less the editor of this journal, had no hand in the matter.

The bee-tree is very remarkable, and a fine specimen. The figure of the man, Mr. George A. Fenton, gives an exact idea of the size of the tree. By the way, if I am not much mistaken this is a very good likeness of Mr. Fenton, for the pose seems to be natural and easy. There is no suggestion that he is close on to a bee-tree; that the same has been cut open, and that there might be angry bees flying about while the artist was pressing the button. As a matter of fact the bees of a bee-tree will offer no attack after several vigorous blows of an ax have been delivered against their domicil. They soon become demoralized, and will not sting unless accidentally pinched. Mr. Fenton is undoubtedly cognizant of this fact.

As he states in his letter, which is herewith given, he has sawn into the tree in five places, and each time discovers the combs are much longer than he suspected. The reader is left to infer that they still extend down into the trunk of the tree.

> *Mr. Root:*—I send you a photo of a bee-tree. I cut this tree last November, and got about 25 lbs. of honey. The tree is standing on the point of a high hill. You will notice that I sawed into it in five places, and chipped the pieces out. You also will notice the bees are all at the top. The tree is about twenty rods from where I live, in plain sight of the house. I gave the honey to the man owning the land, as all I wanted was the photo. I was to have some help but the bees scared them away. I set the camera up, and my wife snapped it. Your humble servant is seen standing by the tree.
>
> I am a photographer myself. I think it would be fairer to some of us living in the Northern States if you would extend the time to July 1st or 15th.
>
> Mazeppa, Minn., April 17. Geo. A. Fenton.

Some years ago there was quite an extended discussion as to how far apart bees space their combs in nature. Some said 1½ inches; others argued just as strenuously for 1⅜ as being the right average. As a matter of fact, combs in bee-trees, straw skeps, box hives, etc., are laid out by the bees all the way from 1¼ from center to center, up to 2 and even 2½ inches. The wide spacing usually applies to the store or drone comb. In the bee-tree shown on page 602, some of the combs, I should judge, are spaced 3 inches. Evidently the bees had not been very much crowded; but when the time should have come when they would have needed more storeroom every available space not narrower than 1¼ inches would have been filled out with combs. The appearance of this tree would indicate that the bees had been located there only about one year. Some of the lower combs appear to be quite white, as if little or no brood had been reared in them.

The only thing lacking about this photo is the fact that the hollow is located so close to the ground as to remove the element of adventure and excitement. There was no climbing—nothing about it to suggest the acrobatic and daring in swinging aloft perhaps 50 or 75 feet from the ground, and wielding an ax until the great limb in which are located the bees begins to give way, creaks, and tears itself loose, coming down with a crash, smash, bang. Perhaps we shall see this enacted in some of the other photos. I do not know what is coming yet, for the "committee" have been given sole charge of the pictures.

A LAWN APIARY.

The other third-prize photo of a bee-yard is unlike the one given in our previous issue in that it is more suggestive of a beautiful lawn or park, of rows of hives laid out with mathematical precision — in short, nature modified by the handiwork of man. Our friend Adam A. Clark, its proprietor, runs almost exclusively for comb honey, and that in plain sections, if we may judge from the correspondence that has passed back and forth from time to time. The small amount of extracted honey he does obtain is secured in connection with his comb. Sometimes in baiting the bees out of the lower story he uses a shallow extracting-super. When he gets the bees once started above he puts on a comb-honey super, and uses the bait extracting-super for some other hive.

The picture was taken, evidently, right in the height of the season. The stacked-up supers, two and three high, and in some cases three and four high, betoken a degree of prosperity that ought to make the owner proud. The whole picture is very attractive of its kind, and, as I have already said, some judges might have given this the first place.

The photo was evidently a "time" view. And right here I wish to suggest to aspirants in our prize contest that a camera mounted on a tripod, with the lens stopped down to the smallest opening, and a time exposure, will, as a rule, give far better results. How do I know this is a time exposure? Just look at the tree on the left—that is, I mean the foliage in the upper left-hand corner. It looks as if a whirlwind was making a regular hullabaloo at the moment of exposure.

HOFFMAN VS. UNSPACED FRAMES.

On account of the heavy demand for bees this year we have been buying up every thing we could find, from farmers in this county who had bees to sell, and then introduce our red-clover stock. It was a significant fact that we were compelled to melt or burn up a large percentage of the combs in the loose or unspaced frames, because of the fearful and irregular spacing, while those in the Hoffman frames were as perfect, almost, as any thing we had in our own yards, showing very clearly that the average farmer in Medina Co,, at least, needs a frame that is self-spacing. In every one of the hives with loose unspaced frames we had a mess of it. All we could do was to cut out or tear the combs apart, and then shake and brush about half or two-thirds of the bees on to frames of foundation in another hive. Of course, it is needless to say these new frames were self-spacing. In this case at least they were closed-end Danzenbaker, as we needed colonies on these frames for orders. The combs of brood in the old frames were so very crooked that we did not deem it practicable to attempt to cut them out and put them into good frames; so we are going to let the brood hatch out without a laying queen, shake on to spaced frames; then melt up the combs.

THE VALUE OF LONG-SLEEVED FINGERLESS GLOVES IN PRACTICAL WORK AMONG THE BEES; THE DUTCHMAN'S REVOLVER.

I FIND there is a great comfort if not convenience in using a long sleeve or gauntlet with a rubber cord gathering at each end, one to close over the palm of the hand, leaving the fingers exposed, and the other over the elbow. Of course, there must be a thumb-hole to make the sleeve complete. I was quite surprised to see how many of the bees would sting the sleeve up *above* the fingers rather than to attack the exposed members themselves.

I found even long-sleeved gloves with entire fingers, when I was trying to cure a bad case of robbing, spoken of elsewhere, decidedly comfortable. The bees were cross —awfully so—and before putting these on they seemed to take particular delight in darting up my sleeves, and stinging the soft fleshy portions of my wrists and arms.* Now, if there is any place outside of my nose and eyes that I do not want to have stung it is the wrists. There was a pair of these long-sleeved gloves in the yard that I never used, but *now* I quickly drew them on, and—presto! what a delightful change! I pulled the combs out of the old leaky hives, transferred them into good tight ones, receiving only now and then a slight prick from a sting that had barely reached through the fabric. A slight movement of the arm or wrist disengaged the sting, and at the same time the bee was minus that organ.

I must say that, hereafter, I shall consider a good pair of long-sleeved gloves something as the Dutchman did his revolver. He said he did not want it very often; but when he did want it he wanted it "mighty sudden." For persons who are timid or inexperienced, who are greatly affected by stings, the gloves are a great relief—indeed, I may say almost a necessity; and I believe the average practical bee-keeper who is not afraid of stings would do well to make a practice of using fingerless gloves like those first described. He will be able to do more work with less interruption; and, moreover, I do not believe it is wise for the average honey-producer to get too much of the bee-poison into his system. What earthly reason can there be for getting stings if they can be avoided? The fingerless gloves or gauntlets are almost as useful as a bee-veil.

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* Not expecting to work the bees I was not provided with my long sleeves. I went to the yard on a tour of inspection to see if there was any thing doing, and lucky I did.

I got this idea from that practical bee-keeper, W. L. Coggshall, of West Groton, N. Y. A picture of him with these gauntlets on will be found in all the late editions of the A B C of Bee Culture, under head of "Veils." You can make them yourself or you can buy them of your dealer.

A TACK-PULLER THE HANDIEST HIVE-TOOL.

The other day when Mr. Chalon Fowls, of Oberlin, Ohio, was here to visit us he brought with him an ordinary carpet-tack puller; and as he handed it to me he said, "Here, Ernest, is the best hive-tool ever invented." But this tack-puller, instead of having a round shank between the handle and claw, had a flat one. Mr. Fowls explained that the divided claw was just right for straddling T tins and tin rabbets in cleaning off propolis and likewise for cleaning the V edge on Hoffman frames, and, moreover, that it was the thing to pry those frames apart. The slightly hooked claw gives a tremendous leverage. When the shank or blade of the claw is laid down flat it enables one to scrape off burr-combs as well as propolis.

The tool retails at most hardware stores at 10 cents. I have been testing it in one of our bee-yards, and I must say I am greatly pleased with it. I do not know but it is as good as the best tool ever invented for this particular purpose. Mr. Fowls has a string hitched on his, about a yard long, to be attached to his pants or vest button. If he slips the tool in his pocket the string shows where it is, and, at the same time, prevents the thing from getting away from him.

Mr. Fowls said all the bee-keepers in his locality are now using this tool, and prefer it to any thing else they have yet seen. When you come to remember that tacks are used very commonly in a board for fastening wire cloth, the tack-puller, as a special tool for the purpose, comes in very handy after the bees have been hauled to an outyard.

BUYING BEES IN OLD HIVES WITH GAPING CORNERS.

In buying up bees, as spoken of elsewhere in this issue, we secured quite an aggregation of old hives that had warped apart so the bees could go through the corners, between the cover aud hive, and between the body and bottom-board. In practicing the shake-out plan of forced swarming, we unfortunately shook a little too close, with the result that the few bees remaining were not able to put up a defense with all the gaping cracks, in addition to the entrances; and before we knew it we had furious robbing at the outyard where these hives were. Fortunately we had on hand a lot of good Dovetailed hives, and immediately went to work transferring the combs into said hives, crammed the entrances up with grass, which would wilt out in time, shutting the robbers in with the bees that were vainly attempting to defend their combs. After the robbers had been shut up with the other bees for a few days they all became part and parcel of the new colony, and the grass in the meantime will have wilted enough to let bees out automatically. Did the robbing stop? Almost immediately after the last combs were put into bee-tight hives.

You may say that our boys ought to have known better; but when one is used to shaking from bee-tight hives it would be very natural for him not to take into consideration the extra set of entrances due to cracks, and warping of the hive-boards.

SOME THINGS TO REMEMBER IN PRACTICING CONTROLLING SWARMING ON THE RETURN-INGBEE PLAN.

We are already practicing the Sibbald and some of the other non-swarming plans at one or more of our outyards; but we find this: In order to make the principle of catching flying bees work in a new hive on the old stand, said hive must have a "drawing card" in the shape of a card of comb, brood, and bees from the parent hive. What will answer almost as well is the shaking the bees from a couple of combs into or in front of the new hive, because there must be bees in the hive to attract the attention and draw in those from the field. Wherever practicable the new hives should be as much like the old ones, in style and appearance, as may be. Even a newly painted hive, exactly like the old one, has a tendency to create distrust on the part of returning bees.

Appearances indicated in the early part of the season that Southern California would have one of its big crops of honey; but we are informed that the conditions now are somewhat discouraging, and that the probabilities are that the crop will not materialize as was first expected. To a great extent this is true also of Texas. There has been an unusual amount of chilly weather throughout the entire country. It is not too late to get a good crop from white clover in the clover belt, and we are hopeful.

Owing to so much cold or chilly weather, accompanied by heavy rains during the past month, there has been not a little chilled brood, many samples of which have been sent in to know if it were foul brood. We are finding to-day in our own yards patches of considerable size that were left high and dry owing to the contraction of the cluster, allowing even the capped brood to chill and die.

GENERAL
CORRESPONDENCE.

MARKETING HONEY.

An Address Given by R. F. Holtermann, Brantford, Ontario, at the Bee-keepers' Convention Held at Syracuse, N. Y., Jan. 14, 1904.

A good article for sale is more than half the battle in marketing. An article spoiled in production can, with difficulty only, get a market, and which it can never hold.

It is better to know how to get an article in proper shape for market than to know only what to do to bring it before the attention of the buyer. Both, however, are of great importance. Honey must be in the right condition, and then distributed in the right way. To give to the people in each market what they want sounds well to the unthinking man; but to carry this policy out means to stop all so-called world's progress. Better methods are desirable, and any way of marketing which can be shown to be to the advantage of the trade and the consumer should be brought forward, and the public educated to see the advantage.

At present, honey generally is produced in about as unsystematic a way, and with about as poor results, as butter was twenty or more years ago—here a few pounds and there a few pounds, without uniformity in production or handling, and much of it injured; for in its various stages its quality can be affected as much as butter. Too much of it leaves the hive when it is really not yet honey, but when it is still in the stages between nectar and honey. Again, that grand quality in desirable table honey, aroma, which helps to hold and develop our market, is practically lost sight of by our bee-keepers. Their method of handling, and the lack of speaking of it, proves this.

THE IMPORTANCE OF EXTRACTING AND BOTTLING SOON AFTER TAKING FROM THE HIVE; FROTH OF NO CONSEQUENCE.

I have 400 colonies of bees, and out of one county alone last season I took some 30,000 pounds of honey; yet with all our rush we extract; and before the honey has lost the warmth of the hive we strain out any particles of wax and the like, and then immediately store the honey in vessels which can be tightly sealed as soon as filled. If any one asks me about the froth, let me answer, froth on well-ripened honey is only, to honey, what the beaten white is to the white of an egg. They are the same, and produced in principle in the same way. Next, honey contains formic acid. This is a valuable medicine, and retards and even destroys the growth of unwholesome germs. In storing, this should be considered. Honey can never remain long in contact with tin without this acid acting on the metal. The percentage of formic acid varies. I have had samples of honey analyzed, finding 100 per cent more in some samples than others.

THE DANGER OF INJURING THE FLAVOR OF HONEY BY HEATING, EVEN IN LIQUEFYING.

Inferior goods not only hinder the sale of similar goods, but they injure the demand for a good article. One becomes an opponent of the other; one neutralizes the effect of the other, and of this phase of the market we can say, a house divided against itself can not stand. So far as I know, all (or almost all of our northern honey has the peculiar characteristic of becoming solid, crystallizing, or, as it is commonly called, granulating. The more delicately flavored honey such as clover, even in expert hands, rarely goes through the process of liquefying without perceptible deterioration in its delicate flavor and aroma. This may be disputed by those of less sensitive palate, yet remains true, and will stand the test. None of us, however, are likely to deny that, when the average retailer with little or no experience in this direction, undertakes to liquefy honey, evil results are almost a foregone conclusion. It may be fairly good, but too often the "bloom" has departed. That the change which honey undergoes by overheating is important, the polariscope proves. Long-heated honey not granulating tends also to show that the nature is changed; its color, flavor, and aroma, as we know, may also be lost. Perfectly grained honey is also a safeguard against adulteration. Under the circumstances a system of marketing extracted honey which would overcome the necessity of passing honey through the dangerous stage of liquefying would be an advantage. In the production of honey we should guard against the mixing, in extracting, of inferior and better grades of honey. In almost every case it results in a reduced total return of dollars. Second-class honey should be sold as such, and kept separate.

THE NATURE OF HONEY; THE IMPORTANCE OF RETAINING THE AROMA.

To produce and sell honey intelligently we must understand its nature. Honey is more than a sweet. Sole leather and beef-steak, with our present knowledge of chemistry, are alike, yet it would be a difficult matter to convince even a hungry man of that fact. Within the last two years Prof. Shutt, of the Dominion Experimental Farm, Ottawa, Canada, has discovered that the past methods of analyzing honey are faulty, and we may reasonably hope that the stage of perfection has not yet been reached. Honey has, in addition to water, saccharine matter, and formic acid, a volatile oil distilled by the blossom which secretes the nectar. The power of these essential oils can be best understood when we remember that in Eastern countries certain plants yield a honey which, consumed, produces death. It is this oil, volatile in its nature, which partially gives honey its aroma. We detect this agency in the blossom, in the field, when we lean over the hive in manipulation, again as we extract, and last, but not least, we know the delicious and often delicate flavor possessed by honey fresh from the hive. Is it desirable to retain as much as we can of this for table use? Assuredly. Why should we follow blindly the lead of those who have gone before, and expose our extracted honey to the atmosphere, thus losing what, in my estimation, is so desirable to deliver to the consumer? There is still much to learn about the ripening process which nectar undergoes in the hive. I see questions which, for their solution, require the careful, expert, and original thought of the bee-keeper and the chemist, the solutions of which questions will be of practical and lasting benefit to the bee-keeper and consumer of honey.

The bee-keeper gets only a small percentage of the nectar the bees gather. The brood is fed; the heat and energy of the bee has, through food, to be provided for; the brood has to be warmed, and the process of ripening through raised temperature and the fanning of the atmosphere in and out, all has to be done at the expense of food consumed. We masticate food, and change starch to sugar by the addition of certain secretions; in this the food undergoes the first stages toward digestion. The bees by nature are compelled to gather nectar a little at a time; they again transmit it to fresh bees at the threshold of the comb; again as it is moved about from cell to cell in the process of ripening. In all of these, as in the slow process of mastication, the honey is being inverted, and in honey we have a partially digested or predigested food ready for assimilation. No other sweet on earth can boast of this in its favor. The above processes, properly carried out, are done at a great loss in quantity from what is first gathered; but it is the machinery power—the coal, if you will, to produce the energy required to gather, change, and seal this food in its stages from nectar to our valuable food—honey. At no stage should this process of ripening, etc., in the hive be stopped by the bee-keeper. To do so must work injury to our market.

WHY THE SELLER SHOULD UNDERSTAND THE POINTS OF SUPERIORITY.

Again, if we do not know wherein our goods are superior to others, which, at first glance, appear to be the same, and are, *not cheaper*, but at a less price, how can we expect to sell them to advantage and do them justice? There is simply no answer to the question. We must understand their points of merit and have faith in them. Possessed of that conviction we can hope to convince *others*.

Think of a butcher, a drygoods drummer, the hardware man, acting in that capacity for a horse-dealer; the dairyman pointing out the merits of fruit, or the poultryman sent as an expert to find a market for cheese and butter, and you have a spectacle of what every Tom, Dick, and Harry is expected to do for honey. Even our governments are guilty of such action. It is often done unthinkingly, but the consequences are disastrous to our honey market.

INCREASING THE DEMAND BY PROVIDING BETTER FACILITIES FOR SELLING.

Bee-keepers should combine in every large city, and have a wholesale and retail establishment for the sale of honey. The retail establishment could have for sale articles of food, etc., in which honey has been used as an ingredient. Here the highest in the land could be drawn by advertising exhibitions of bees, their handling at certain hours, observatory hives, and displays, setting forth the natural history of the bee and so on. Such a store, at a comparatively small outlay, could be made the talk of the city, and reach the most intelligent and desirable class of citizens, and honey be made to reach the tables of thousands upon thousands where the article is to-day a stranger. In other places, arrangements could be made to make the sale of honey a strong (not neglected) department of a business already established, or the business in certain places might be run for only a portion of the year, but always have in charge a bright, alert, expert man having confidence in and knowing the goods. These centers could also be made centers of instruction to employees in establishments where the sale of honey would be desirable.

MAKE A BIG DIFFERENCE BETWEEN WHOLESALE AND RETAIL PRICES.

Give a proper margin to the one who sells your honey. Bee-keepers as a body are much to blame for having their wholesale and retail prices too close together. A retailer should have not less than a margin of 20 per cent.

HIGH PRICE NOT AN OBSTACLE.

We as bee-keepers often talk as if the price were our main difficulty in selling, and as if the price alone stood in the way of a larger market. I venture to assert this is not where more than half our trouble lies. We could raise the price if we would only first improve the general quality, make stronger efforts to put the merits of honey before the public, distribute it more evenly over the country, and give the dealer a better margin. Does any one doubt it? Let him look at proprietary goods, trade-marked foods which stare us in the face on every table to-day; let him consider how much of their place on the market is due to real merit and how much to advertising. Draw your own conclusions and doubt no longer.

SUGAR TAKING THE PLACE OF HONEY.

Until millions and millions of dollars' worth of sugar at present consumed by our people have been replaced by millions of pounds of honey we have no right to say there is no market for honey. Give honey back the place it once had as a sweetener, and our people will have back a greater measure of health. The public must, of course, be provided with what it wants; but our keynote should be to educate them to use what they need and what is best for them.

BRICK HONEY.

It is in our interest, and the interest of the people, to advocate for the table either comb honey or honey which has been sealed until granulated. For fancy trade we might put it into jars like cream cheese, and immediately run over the top a thin film of melted paraffine, the object being to exclude the air and retain the aroma of the hive. When granulated solid, as in large barrels, the block can be cut like cheese, with a wire, and retailed. I know of no better way of marketing, and you can in this way give a customer the most value for his money.

AID FROM THE GOVERNMENT.

Unfortunately for us as bee-keepers, governments do not do us justice. We can join hands with you over the line, which we as Canadians hope will not be effaced as long as man's government lasts, and we can feel with you that we have a grievance in common. Governments levy taxes upon the wealth obtained by bee-keeping, but, unlike other branches of agriculture, they rarely help us to solve our difficulties in production and marketing. The past history is that, in nearly every case, for political or other expediences' sake, incompetent parties have been appointed in the rare instances where any thing has been done. The government betrays its trust in this, and we as bee-keepers are worse off than before. Results in experiments have been given out where the expert bee-keeper can see under the veil, and gnash his teeth that his profession should be thus belittled; and the poor novice, swallowing in his verdancy all that comes from such a source, like the blind leading the blind, is brought into the ditch. If we want to make the best showing in marketing we must have government aid, and have the aid other departments of agriculture are getting, and which a branch of agriculture having power to produce wealth merits, and not have our governments, by their lack of action, blazon it abroad that bee-keeping is not worthy of or a rewarder of the highest agricultural intelligence and application.

Bee-keeping is a business. It requires experience, application, and intelligent care to succeed in it. The sooner we impress this upon the bee-keeper and prospective bee-keeper the better for our honey markets.

[The government of the United States is now doing much more for apiculture than it ever did before. There are three or four salaried officials in the pay of Uncle Sam who devote their whole time to the general subject of bees. New plans are under way for a new and larger work, and it will not be long before bee-keepers will have no reason for complaint for lack of attention to their industry proper.

The foregoing is full of valuable as well as seasonable suggestions, and our readers will do well to give it careful thought.—ED.]

HOFFMAN FRAMES.

Recent Arguments Answered by the Inventor.

BY JULIUS HOFFMAN.

After promising to write more about the Hoffman frame and V edge I looked over back numbers of GLEANINGS, and found that so much has been written about the frame, pro and con, by more able writers than I, it took the wind out of my sails, and I hesitated to say any more about the subject. However, as I have used the frame which is known by my name for over 30 years, I wish to say that I do not know of any other frame that could induce me to make any change.

MODIFIED BY THE ROOT CO.

To give the reader a better understanding of why The A. I. Root Co. thought proper to modify the frame so far as the top-bar is concerned, I will mention that the hive I use is rather cubical in shape, the top-bar being only 12 in. long, hanging across the narrow way of the hive, in rabbets only $\frac{5}{16}$ wide and deep.

The depth of frame is 12 in. outside by 11 wide, the projection of the top-bar resting in the rabbet only ¼ inch on each end. The manufacturer of the Hoffman frame (The A. I. Root Co.) for the very good purpose of making the Hoffman frame adaptable to the at present existing style of hives, made the change of the top-bar, differing from what I use.

UNSPACED FRAMES CONDEMNED.

To say any more about the advantages of self-spacing frames I think is unnecessary, as, for the practical bee-keeper, the loose swinging frame is out of date, although some would-be bee-keepers will still say that a loose not self-spacing frame can be spaced by fingers or eye measure speedily and correctly, and that a fixed-distance self-spacing frame is not as easily interchangeable. Mr. Editor, you know as well as I do how the combs in a colony of finger-spaced frames look after being worked for a time. Only an experienced worker could ever space them as accurately as they should be, not mentioning the careless or beginners, and, of course, combs will be in bad shape for interchanging, while the self-spaced are of a more uniform thickness, and better fitted for interchanging.

FORGETTING TO CROWD FRAMES TOGETHER.

Mr. J. A. Green, Oct. 1, 1904, says that the Hoffman frame is not the frame for average bee-keepers, as they will forget to crowd the frames together when finishing work in a hive. This is easily answered by giving such average bee-keepers the advice to go back to the old box hive. However, I for one have a better opinion of the average bee-keeper. I know many of them personally who are not slovenly, but handle the Hoffman frame all right, although not experts.

DIVISION-BOARDS AND NUMBER OF FRAMES.

Right here I will say that I find division or spacing-boards essential with a spaced hanging frame, and of much importance to me. My hives hold eleven frames without the spacing-boards, but as a rule I use two boards and ten frames, which leaves space enough in my size of hive between the spacing-board and the hive-end for handling boards and frames with ease. However, I do not confine myself to giving a colony a certain number of frames. When I put on section-supers I regulate the number of frames to give or leave a colony, according to its strength in bees, so that the weaker colonies get 8 or 9 frames, and the vacant space is filled out with more spacing-boards, of which I always keep a surplus near by. With wedges behind the follower or spacing-board I do not bother, as the bees will fasten things well enough if we crowd frames and boards well together after working and handling them.

PROPOLIS.

This brings me to talk about propolis, which is generally held and talked about as a great nuisance. An excess of propolis, of course, is not desirable; but I consider it only a necessary evil, and, would rather have the frames glued together with propolis than not at all.

The V shape in the Hoffman frame is condemned by quite a number, as they claim too much propolis is used by the bees to fill up the space between the beveled edge where it meets the square edge of the next frame. This the bees do with me to such a small extent that I certainly want the V edge yet.

It does not give me much trouble in my locality, but the difference in breed did so quite considerably. I imported the Cyprian and the Caucasian bees, and found them to be excessive propolizers; they even would close the hive entrances with propolis so that only one bee could go through. I had also Italians that would use wax in place of ordinary propolis, packing it on their legs wherever they found any scraps of it lying round.

NAILING TOGETHER WRONG.

Another objection to the V edge is raised by C. Davenport, Nov. 15, also by J. A. Green, Oct. 1, 1904, about nailing the V-edge frame together the wrong way, so that the V and the square edge will not meet right. I will only say that I have had inexperienced hands nail V-edged frames together by the thousand, and would not make any mistakes after showing them how to do it. I invented the main features of the Hoffman frame, but I am tolerant enough not to find fault with those who have different ways and appliances; and although there is more in the man than in the hive or frame he uses, I am sure the best frame will give best results in manipulating, and consequently in dollars and cents.

Mr. Ernest Root, I believe, has the right idea when he thinks of manufacturing both the V and the square edge Hoffman frame, so that all can have their choice, and so do away with considerable grumbling and fault-finding, which is often caused by difference in climate and locality, and also by difference in the breed of bees.

To wind up, I will say that many criticise or find fault with a new thing which they have not tried long enough. For example, it was thought the Hoffman frame could not be used in Cuba. How is it now? The A. I. Root Co. sends carloads there and to other hot climates. Louis H. Scholl, Jan. 15, 1905, states that he used the V-edge Hoffman frame for a number of years, and thought the V-edge unnecessary, but has changed his views since, and decided in favor of it.

Canajoharie, N. Y.

PRODUCING BOTH COMB AND EXTRACTED HONEY FROM THE SAME SUPER.

How to Control Swarming when Running for Comb Honey; a Valuable Article.

BY E. D. TOWNSEND.

I think I have something good for the readers of GLEANINGS. It did not originate with me, so you see if I should get enthusiastic before I am through, and paint the idea a little rosy, I can not be accused of lauding my own ideas. The credit belongs to that veteran bee-keeper, Mr. O. H. Townsend, of Otsego, Mich., and was given to me between sessions of our Michigan State Convention at Grand Rapids, in February. You know, E. R., that, in producing comb honey, if we give a super of brand-new sections with full sheets of foundation to a colony of bees at the approach of the honey season, likely as not they will sulk, or at the best do only a little work in the sections, and then swarm. To overcome partly this tendency in the bees to go above, probably the majority are "bait sections," dirty things of the previous season's use. The honey in these dirty sections is always of an inferior quality. The argument that is usually presented in favor of this use is that they cause the bees to enter the sections so much more readily that really they do not cost the producer any thing — that we get just as much or more honey, exclusive of the bait sections, so the bait sections really cost us nothing; but I think most of them eventually find their way on the market, though, and I am sure these bait sections do not help the market any, and are quite likely to cause less consumption of comb honey.

Perhaps the next most marked system is Mrs. Barber's plan of giving each colony a shallow super of drawn comb to start them above. After they are well started the drawn-comb super is removed and a super of clean new sections with full sheets of foundation is substituted. The bees being used to working above do not hesitate about going into the sections when substituted for the combs.

I now think the reader's mind is in the right channel, so it will be easy to convince him of the superiority of the Townsend plan, which I am about to describe.

THE ARRANGEMENT OF THE SUPER TO PRODUCE BOTH COMB AND EXTRACTED HONEY.

In arranging the super, use two super-springs to each super, one at each end; and when I speak of extracting-combs I mean those that are white and nice—no brood ever raised in them. The first super given each colony at the approach of the honey-flow is arranged with one shallow extracting-comb at each side, and one in the center; the rest of the super is filled with clean sections, with full sheets of foundation; then when this super is partly filled with honey, the usual time for giving a second super, in fact, all the supers given after the first are placed *under* the previous one, and are always arranged with *one comb at each outside of the super.*

Now, when we guess we shall need only one more super to hold the rest of the honey-flow, a super of all drawn combs is given *on top.*

Doesn't it begin to appear to you that there are great possibilities for this system in the future? Mr. Townsend claims for this system *much more comb honey,* and quite a quantity of the finest grade of extracted per colony.

The great point in favor of this system is the stimulus the extracting-combs give a colony, causing them to go above immediately, as soon as there is just a little honey in the field; thus the brood-nest is kept in almost the same condition that is secured in the production of extracted honey, this causing very much less swarming, and keeps the colony in that condition so essential to the best results in honey production. Then the bait-comb nuisance is done away with. This in itself is enough to make it worth while to adopt this new system.

Mr. Townsend uses a closed-end extracting-frame that fits his super. Any one can figure out the size and thickness of frame that will fit his super; but we prefer 1¾-inch spacing in our extracting operations, but of course there are no separators used in them. If separators are used, as would be likely in a comb-honey super, 1⅞ or perhaps 2 inches from center to center would be nearer right. Likely the width of one's super would determine to quite an extent the spacing he would have to adopt. Make them fit your super. Isn't this a grand idea, this using an extracting-comb in the outside of each super, making this part of the super that is usually finished last the first that is commenced, with this condition secured. Is there any question in the mind of the experienced comb-honey producer that the rest of the super containing sections will be drawn out with astonishing rapidity, thus securing that ideal finish so much sought after, and heretofore secured in only a lavish honey-flow? I predict a great future for this system.

PRODUCING BOTH COMB AND EXTRACTED HONEY IN THE SAME FULL-DEPTH EXTRACTING UPPER STORY.

In producing extracted honey we use the ten-frame Langstroth hive, and use eight combs in a ten-frame upper story to extract from. Now, when starting a new yard, usually by buying most of the bees, our practice is, in furnishing them with combs to be used in their upper stories, to go to a yard having their upper stories all full of drawn combs, and take half their combs to the new yard. This leaves four drawn combs for each upper story at both yards. Now we put in the place of the combs removed four wired frames with full sheets of foundation. Some of you by this time are likely wondering what this has to do with raising comb honey in an extracting upper story. It is this. We find with the upper stories arranged with half-foundation and half-drawn combs we can prevent swarming to nearly the same extent as when full sets of combs are used. Taking advantage of this fact the question arises, How many wide frames of eight sections each can we substitute for these four frames of foundation, and still prevent swarming? If we could sandwich in only three to each upper story, that would be 24 sections to each upper story.

Perhaps it would be well to close the season with a full set of combs, placed on top the same as I told you heretofore, with the single-depth super. The idea is, to get all our partly filled supers exclusively in the extracted form. The object is this: Every wide frame of sections we can get in this way is worth in the market about twice what it would be in the extracted form. It is a quicker sale, and the tendency of the times is that specialists, with their increasing number of yards that are at the present time starting up over the country, will in the future produce such large quantities in the extracted form that there is a possibility of a still wider margin in prices between the two articles unless some such arrangement as I have outlined above can be worked, so quite a per cent can be taken in the comb-honey form, and still control swarming in the outyards.

In conclusion I want to add that I am an enthusiast over this idea that was brought forward at our convention at Grand Rapids last month, and during the next few years I shall test this system thoroughly in both my comb and extracted honey supers, and shall add all the wide frames of eight sections each to my extracting upper stories that I find I can, without causing swarming at our outyards where no one is present to hive swarms that would be quite sure to come if we used too many sections in place of drawn combs.

Remus, Mich., May 8.

[This I consider a very valuable contribution to our bee literature of this year, and I hope every one of our comb-honey people will read it very carefully.

A few years ago the fact was pounded forcibly into me that some colonies were inclined to sulk the minute we gave them a super of sections. They would crowd every available cell in the brood-nest, and very often swarm before going into the sections. I found that I could get such colonies over their sulkiness to a very great extent, or, rather, give them no chance to get sulky in the first place, by giving them a shallow super of extracting-combs; then when hey *once got nicely started going above*, take away the super and substitute one containing sections with full sheets of foundation, and, presto! they would go to work in this also. In some cases I put the shallow extracting-super with bees on top. In other instances I shook out the bees and gave the same super to another would-be sulky colony. Later on, Mrs. A. J. Barber, quite independently of myself, struck on a similar plan, and since then a good many have practiced the same method of producing both comb and extracted at the same time, from the same colony, with gratifying results.

But here is a plan which I believe to be superior to the Barber; and the further fact that it is indorsed by such men as O. H. and E. D. Townsend shows there must be something good in it or we should not have heard of it. It comes just in the nick of time for many of our subscribers to put it to a test, and I hope they will do so at once and report results.

Most of the comb-supers of to-day have section-holders. Those for plain sections are only 1½ inches wide. I see no reason why a section-holder for plain sections (or for the other kind) could not be readily made into an extracting-frame by nailing in a top-bar between the two ends so that it will come flush with the top of said ends. From this top-bar might hang a full sheet of foundation. One could even put fences on either side, after the honey crop, cut out the comb as so much chunk honey, or, better, perhaps, extract, and save the empty comb for bait on the Townsend plan for the following season. There are probably thousands of old-fashioned wide frames still in use. These can be used in connection with full-depth extracting-supers.

Either plan is so easily carried out by appliances that bee-keepers *already have in hand* that we shall hope to get many reports ere two or three months roll by.—Ed.]

A PLEA FOR A LARGER PACKAGE OF COMB HONEY.

The Pound Section to Blame for the Depressed Condition of the Honey Market.

BY VIRGIL WEAVER.

Pages 398 and 437 indicate to me that the section-honey men have gone into the ditch; namely, big supply, no demand. It seems to me that a pound package is too small. In the first place, it is harder to produce, thus reducing the profit along this line. Then, again, it has a tendency to reduce the demand by educating the public to buy in small packages, or just a little at a time, if you please. If a merchant has honey to sell, a buyer will take a pound section; two if he will give a reduction, and quite likely this is the first and last for the year; while, on the other hand, if the package contains three or six pounds they will buy just as quickly; then by giving a reduction of five or ten cents as an inducement to take two packages, as per the sections, he has sold six or twelve pounds instead of one or two, and this is quite a gain.

The northern producers of comb honey can learn something from Texas—that is, produce "chunk" comb honey in shallow frames, and sell in three and six pound friction-top pails.

There will be no big demand for comb honey so long as it is put on the market in one-pound packages. I agree with Mr. G. M. Doolittle, that, by reducing the two-pound section to a one-pound was a serious mistake. If section honey we must have, the larger the section the better. I think the section itself has done more damage to the comb-honey market than all other agencies combined. There are several reasons for this. The manufactured-comb-honey lie was caused by section honey. They are so nearly perfect that they do look more like the work of a machine than the work of bees. To the uneducated public, all sections look alike. The casual observer does not go into the details of producing section comb honey as we bee-keepers do. They give a case of honey a glance, and pronounce it bogus because "I saw it in the paper." Show them a pail of chunk comb honey, one comb thick, one thin, one large piece and one small, and this to the general public looks more like the work of bees. Sections are hard to keep clean. It takes special care in dust and insect proof cases to keep it nice. This is a serious objection to section honey by many consumers, and to the grocer in particular. Here in our towns now I see section honey exhibited for sale without any thing over it. This is not much of an inducement to nice housekeepers to buy and eat honey. No wonder it is retailing at 10 to 12½ cents per lb., and no wonder the market is glutted. The Russian tin boxes would protect the honey, but they leave us in the same old rut—too small a package. If we must make a change in our package why not "go the whole hog" and adopt the three and six pound friction-top pail? They are dust and insect proof, easy to handle, harder to smash in shipping; are shipped at the railroad's risk and at a lower freight rate; are useful after the honey is cleaned out of them—something that can not be said of the section.

I should like to make a suggestion to the Honey-producers' League—that is, to put traveling salesmen on the road who can sell and talk honey. Sell to the grocery trade. Every time he sells a grocer say 500 lbs., advertise it for him in his local paper, and in large towns advertise the League. I have tried this with the very best results. The grocer never has any left on his hands, and I most generally make him another shipment. I sell my extracted honey at 10 cts. wholesale; comb honey 14 cts., while my neighbors who depend on the local market wholesale their section honey at 8 and 10 cts. I will explain a little further.

I keep myself posted as to where there has been a failure in the honey-flow; and after the season is over with me I go to these localities and sell my entire crop in a very few days. There is a great demand for pure comb honey in our large cities that is never reached, because people are afraid of section honey. By advertising, the Honey-producers' League can do much good. The $1000 forfeit will help; but as long as a customer can say, "I want a pound of your nice honey you have advertised," there will be no demand equal to the present supply of section comb honey; therefore give us a larger package—something that will keep the honey secure until it is consumed, be that a day, month, or year.

Chunk comb honey will not have to lie on the counters a year or two before it is consumed, as section comb honey has to do; therefore it will not get an opportunity to candy. This eliminates the only objection to the friction-top pail.

Ainsworth, Ia., May 1, 1905.

[After reading Mr. Weaver's article one can not help acknowledging that he may have a good deal on his side of the argument. It would seem a little unorthodox to go back on section comb honey, which has seemed to be a long step in advance over box-hive comb honey, and to a great extent it certainly was and is. At all events it is perhaps possible that comb-honey producers have been concentrating their efforts too much on one style of package.

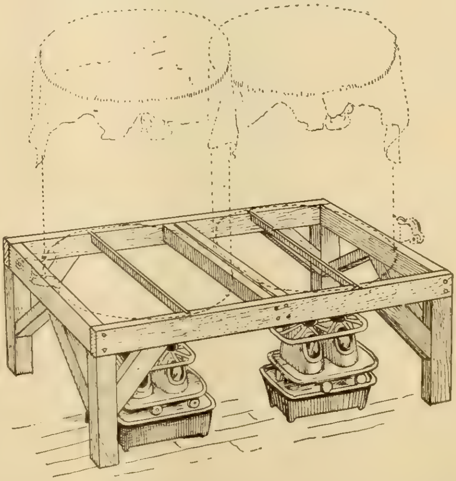
The bee-keepers of Texas have made a great success with their chunk or bulk honey; and it is no doubt true that we of the North ought to give more attention to it ourselves. Probably the city markets would not take to it very readily; but the local trade, especially the trade that knows *personally* the producer, would probably prefer to buy honey in that form to that which looks so nice and pretty in little boxes, but which, in the eyes of these same uninitiated, are suggestive of bogus or so-called manufactured comb honey. But Mr. Weaver strikes on one very important point—that of inducing the trade to buy not merely one pound at once, but five or ten. It often requires almost as much effort to sell one pound of comb honey at a certain price, say 15 cents, as it does to sell five pounds of bulk honey, we will say at 10 or 12 cents. Manifestly the bee-keeper would make more money at 12 cents than he would at 15, for his bulk honey would not require special sections, and he could put into the pails combs with uneven and unsealed cells as well as those that are extra fancy, so far as whiteness and evenness of capping are concerned, and get the top price for *all* all his comb honey.—ED.]

WARMING EXTRACTED HONEY.

How to Do this with Little Heat, and without Danger of Injuring the Flavor.

BY G. C. GREINER.

The accompanying illustration, Fig. 1, represents a plan which may greatly assist in overcoming a certain trouble in the production of extracted honey. I aim to have all my honey drawn from the tanks, either into retail packages or into 60-lb. cans before granulation takes place. But sometimes, especially in the later part of the season, it happens, by a little neglect on our part, or by compulsion of prevailing conditions (for we are not always master of the situation) that the process of granulation begins before we really expect it, thus making the drawing-off a very slow operation, if not entirely impossible. On account of the weight of our tanks when full (mine weigh approximately 400 lbs.) it is practically impossible to handle them, which would be necessary if we had to move them on to a stove or some other heating device for reliquefying. I have found by actual experience that the application of the little two-wick oil-stove,



as shown in the illustration, simplifies the matter to perfection.

Last fall I was caught as above mentioned. When I undertook to draw from one of my tanks the honey had thickened to such a degree that it would hardly pass through the gate; it would seemingly take ten or fifteen minutes to fill a one-quart can. This state of affairs presented to me a welcome opportunity to test the illustrated heating scheme, which I had previously (for a number of years) planned to put into practical use whenever its necessity should occur. To my great satisfaction the result was all I had hoped for. After the little oil-stove had been lit and turned to a very moderate heat, not more than the hand held against the bottom of the tank could bear, for about six hours, the honey would flow from the gate almost as rapidly as when first extracted. To be sure, it was not all melted yet, but by giving it a little more heat and more time it could undoubtedly be reduced to its former fluid state.

Until last winter I always used for my honey-tanks solid two-inch-plank benches. Of course, these would not permit the use of the stove as I had planned; and to be prepared for the emergency I had built a stand as shown in Fig. 2. This is simply a frame of 2×4 scantling with legs and braces of the same material. Being calculated for two tanks, its size is about two squares of the tank diameter. This gives the tank a support of four two-inch arcs, see dotted lines, leaving the center all exposed to receive the heat from the stove below. As a safeguard against a possible overstrain on the bottom of the tank, and at the same time to interfere as little as possible with the heat coming in contact with the bottom, a piece of common buggy-tire is slipped into a groove of the frame, which is also shown by the drawing.

It must be remembered that a tank of honey can be easily damaged by the application of too much heat; it is, therefore, necessary that we be very cautious when using artificial heat in this way. It would be a safe guide, when turning on the heat, to lay the hand against the bottom of the tank above the stove, for I hardly think that any harm could be done by any heat a person's hand can bear.

There is another advantage connected with this heating scheme. We are sometimes anxious to have a tank of honey go through its clarifying process sooner than it naturally would. A little additional artificial heat, even when honey is all liquid, and when the summer temperature is at its best, will help to hasten clarifying.

At other times honey may be so very thick that those little specks of impurities, whatever they may be, are extremely slow to come to the top. Here, too, the little oil-stove may help us out.

La Salle, N. Y.

[Liquefying or heating honey by means of an oil-stove as shown in the above illustration, I believe to be an excellent idea. It has the merit of a slight amount of heat, which can be prolonged without perceptible variation for a day or two at a time; for a low gentle heat for a long time is better, much better, than a high temperature for a short time. Honey liquefied as shown would lose scarcely any of its aroma at all. Those who do a business of bottling can put their honey in with this kind of outfit more economically than with a gasoline-stove, where the heat would be intense for a time, and then could be shut off.

But I would suggest that it would be more economical still to box up the sides and ends of your topless table, and then use only one oil-stove. The confined heat would probably be equal to that of two stoves where a large portion of it would be dispersed and do no good. A little ventilation, of course, should be provided at the bottom—just enough to permit of a slow circulation. I do not believe there would be any danger of setting fire to the woodwork with only one stove. If the heat were too great, light only one burner. I suggest that you try the experiment, and report the result in these columns. We will pay for the time and material to board up the table if you will send us in your bill of it with a report.—ED.]

THE SCENT FACTOR IN INTRODUCTION.

Has it been Overvalued?

BY ARTHUR C. MILLER.

Mr. Root:—I beg leave to reply to Mr. G. W. Phillips' article on p. 124; and as he is speaking for you I shall quote some of your statements as well as his.

He begins by saying that I am correct in a few of my assertions, but he fails to specify which. In criticism he says that I seem "to take it for granted that we believe scent to be the only factor worth consideration in introducing queens." I fail to see how he deduces that from my article.

But here is what you do say: "The cage should be on the frame (where the bees can *get acquainted* with the queen) for at least twenty-four hours," A B C book, page 227. And, "The queen thus *acquires the scent* of the combs, brood, and of the cluster, and hence will be *more likely* to be accepted," A B C, p. 228 (italics are mine). On p. 231 of the same book is a statement that it is the old bees that cause the trouble in queen introduction. Have only the old bees the sense of smell? Scent and old bees are the only two factors given in the section on "introducing." Again, "Dr. E. F. Phillips has shown that bees recognize each other entirely by the scent," GLEANINGS, Sept. 15, 1904, p. 886. I can agree to that, and still not have to qualify my statement that the scent factor in queen introduction has been overvalued. Still again, "If the new queen *has acquired the scent* of the bees of the hive she is just as much a part of the colony, and will be accepted as readily as though she had been in the hive as long as the old queen," GLEANINGS, Sept. 15, page 886 (my italics).

Would I be wrong in inferring from these statements of yours that you "believe scent to be the only factor worth considering"?

What I did say was that too much stress was laid upon it. Further, I specifically stated that it was "a reasonable supposition that each colony has its individual odor." I also said that this odor might "have some bearing, in that it possibly acquaints the queen of the fact that she is in a strange place, and so cause fear unless this is overborne by hunger." Perhaps I should have done better to say, "cause fear or arouse a combative spirit," because we do not *know* whether the queen or the workers give the signal for battle, though I have reasons for believing that it is the queen.

Mr. Phillips also cites exceptions to the "rule." If odor were of the value he gives it, such exceptions would be rare; but, as we all know, they are not, hence it is proper to question the extent of its influence. In uniting bees he says they sometimes fight and sometimes do not. If odor were as vital as stated they would always fight despite tobacco smoke or any other smoke; for individual body odor, if pronounced enough to possess the importance ascribed to it, is above and beyond being submerged or eliminated by any such superficial application.

In regard to my statement that bees are sometimes allowed to pass freely between colonies, he suggests that I look again. I will answer him in his own words: "He ought to try a thing before he condemns it" (GLEANINGS, page 126, foot of first column). Because he knows nothing of it is no proof that it is an error.

He says I have only to test the caging method to find out that it is the safest by which queens can be given to fertile-worker colonies. And you say, "It is *almost impossible* to introduce laying queens to such colonies, A B C, p. 236 (my italics). I do not find it difficult to introduce queens to such colonies, and I use the "direct" system for the purpose.

The caging system has its merits, but its usefulness is not due to its overcoming scent. Direct introduction, by the way, was used for half a century or more before Mr. Langstroth's book appeared. Simmins only developed and systematized it, and brought it to public notice. I have not heard of any way of presenting a queen to the bees, which I have not tried.

In referring to introducing queens to fertile-worker colonies, Mr. Phillips cites some so overrun with laying workers as to make it possible to pick them out by catching them in the act. It is comparatively easy to identify the guilty ones without waiting to catch them laying, after the observer has once become familiar with these peculiar bees.

If odor is the governing factor in a queen's reception, perhaps somebody can explain why several alien queens can be simultaneously turned loose into a colony of bees and all be peaceably received. They can't? Oh! yes, they can.

Expunge the odor factor, and still nearly every example cited by Mr. Phillips is susceptible of a rational explanation. I do not for an instant pretend to be above error in my conclusions about odor; but I have yet to see any convincing *proof* that it exists to the degree taught, or that it is of the importance ascribed to it. If it is so powerful a factor, how can the multitude of constantly recurring exceptions be explained?

As I have said before, we are so imbued with the teachings of our predecessors, whether they are right or wrong, that it is almost impossible for us to study the bees with an unbiased mind; but until we do that we need not expect to advance very far in accurate knowledge of bee life.

Providence, R. I., March 20.

[This article has been held in order that the points at issue can be tested out among the bees. If the scent factor has been overvalued (and perhaps it has) let's know it.—ED.]

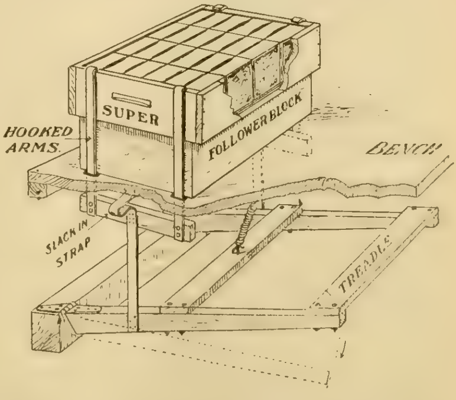
A COMB-HONEY EJECTOR.

A Device to Push the Filled Sections Out of Supers without Breaking Them.

BY HENRY STEWART.

In packing honey I have used almost all kinds of supers and many different devices for getting the honey out of them, but I have never been quite suited with any method I have ever used except this one.

For convenience, both on the part of the bees and of the bee-keeper; for simplicity, cheapness, durability, and profit, my choice of all supers is the T super, with the bee-space at the bottom, the quilt covering the sections, the flat cover and the 20-lb. stone—well, no, not the stone. I use shade-boards instead. I also use staples as T rests in the bottom of the super.



My method of emptying these has been to elevate the super, bottom upward, on the edge of two blocks, and with a follower and lever force the contents down and out. My present method, which I put into practice last season, is just the reverse. Instead of elevating the super bottom upward, and forcing the honey downward, I elevate the follower, set the super right side up on top of it, and force the rim of the super down and off, as you would pull the hide off from a rabbit.

One of the secrets in successful packing of comb honey is to get it out of the supers with the least possible wrenching and jarring, which will break cappings and cause the honey to leak. In this respect this remedy is very nearly perfection, as the whole strain of emptying comes on the rim of the super and not on the honey.

This method originated with me in an endeavor to get some system that had in it rapidity, and at the same time would do away with the annoyance of the drip in the bottom of the shipping-cases, and in this I was amply successful in both features; and if a description of the device will be of benefit to the fraternity they are more than welcome to it.

On top of my packing-table, a little bench the height of my supers is constructed. The top of this bench is the follower above referred to, and should be slightly smaller than the inside of the super; and if the reader should be so unfortunate as to be one of those T-super fellows and uses staple T rests, the follower should be so slotted as to let these staples through. Fasten this bench permanently so the side of the bench will be parallel with the table, to get correct positions. Slip an empty super over this bench, and at each end, just outside of the super, and near the corners, cut two holes ½×1 through the table. Take four pieces of strap iron, say 1×⅛, and sufficiently long to reach from the top of the super placed on top of the little bench to 4 inches below the openings in the table. Three-quarters of an inch of one end of each iron bend to a right angle, and near the other end drill two $\frac{5}{16}$-inch holes. Now pass these irons through the holes in the table so the L-shaped ends will rest on the ends of the super. Now under the table at each end yoke each set of two irons together by bolting them fast to a piece of board 1×2½ inches. In the center of each of these yokes fasten a strap which will extend downward and fasten to the arms of a treadle directly below.

This treadle should be securely made with two arms, a cross-bar, and is hinged at the back of the table four inches above the floor, so that both arms must work in unison. Between the bottom of the table and the treadle fasten a coil spring to lift automatically the treadle, and the ejector is ready for action.

To operate it, place a super to be emptied on top of the little bench, right side up. Hook the irons over the ends of the super; step on the treadle, and the work is done.

This is true when the weather is warm; but when it is cold, and the propolis is stiff, a light-weight person will need all the power he can get on the treadle, so it is advisable to place the little bench as far back on the table as possible, and figure to get as much lever purchase as possible in the treadle. In obstinate cases a stroke with a hammer or a pry of a chisel on each corner while power is being applied will break the propolis, and the weight of the body will do the rest.

To the extracted-honey fellows who use shallow closed-end-frame supers, here is something useful. Construct one of these in convenient position to your uncapping-can and see how nicely it will work.

Prophetstown, Ill., Feb. 24.

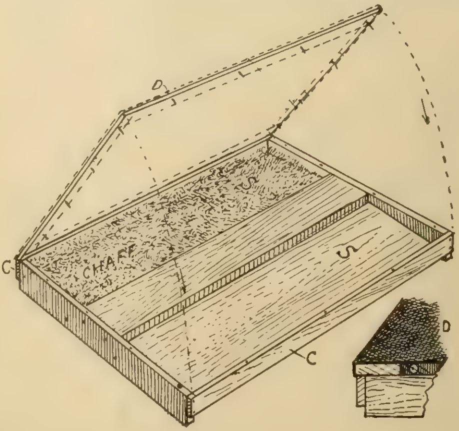
CHAFF-PACKED COVERS.

Making out of Old Leaky Excelsior Covers.

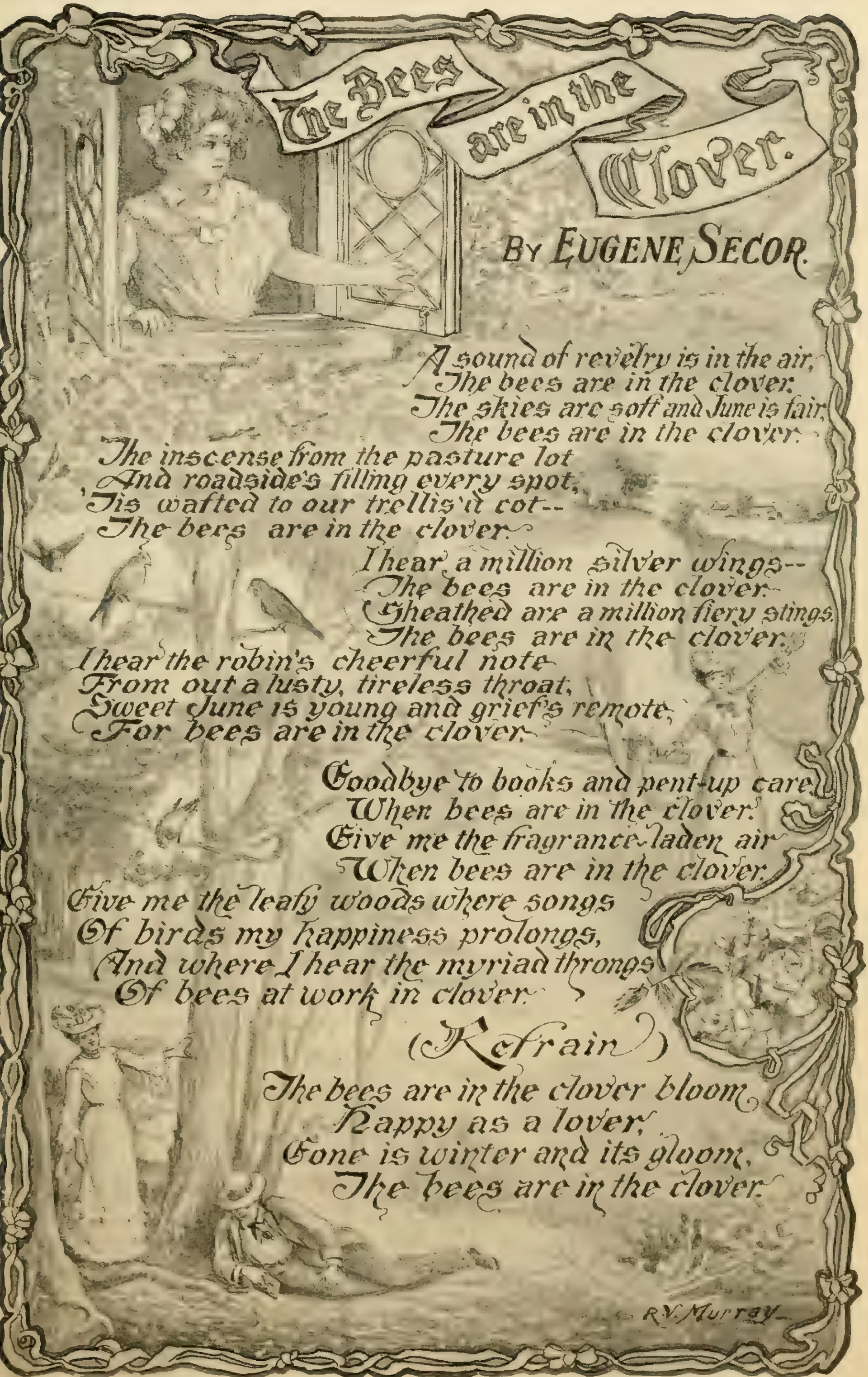
BY C. F. BENDER.

The excelsior covers may be very good if they are kept well painted; but if the painting is neglected until they become season-checked and begin to leak, they are something of a nuisance. I have a way of changing them into good waterproof covers, without very much labor or expense. Of course, it does not pay to buy the excelsiors new just to change them into double covers; but if one already has leaky ones on hand, that is a different matter.

The strips C C are first put on, coming up flush with the top of the cleats. Then the spaces, S S, are filled with chaff or sawdust, and the whole top is covered with thin lumber. Put on a roof of Neponset or other good roofing-paper, and give it three coats of paint. This cover always stays flat, and gives good satisfaction the year round. I have had fifty of them in use for two years, and like them nearly as well as the regular double covers. They are a trifle heavy, but for that very reason they never need to be weighted, and, if painted white, no shade-boards are required. The paper is quite a protection against heat or cold, holds paint much better than wood, and lasts longer than tin. If you want a lasting cover, don't use cleats to hold the paper on. Simply turn under the edge about ¾ inch, by folding over a straight edge, and fasten with heavy tacks.



Newman, Ill.



The Bees are in the Clover.

BY EUGENE SECOR.

A sound of revelry is in the air,
The bees are in the clover.
The skies are soft and June is fair,
The bees are in the clover.
The inscense from the pasture lot
And roadside's filling every spot,
'Tis wafted to our trellis'd cot--
The bees are in the clover.

I hear a million silver wings--
The bees are in the clover.
Sheathed are a million fiery stings.
The bees are in the clover.
I hear the robin's cheerful note
From out a lusty, tireless throat,
Sweet June is young and grief's remote,
For bees are in the clover.

Goodbye to books and pent-up care
When bees are in the clover.
Give me the fragrance-laden air
When bees are in the clover.
Give me the leafy woods where songs
Of birds my happiness prolongs,
And where I hear the myriad throngs
Of bees at work in clover.

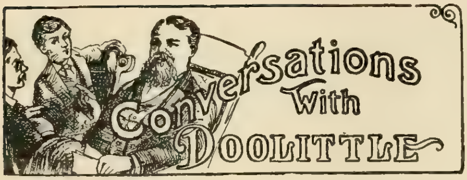
(Refrain)

The bees are in the clover bloom
Happy as a lover,
Gone is winter and its gloom,
The bees are in the clover.

THIRD PRIZE, FIRST CONTEST, CLASS B. "ANY OBJECT RELATING TO BEE CULTURE."
GEO. A. FENTON, MAZEPPA, MINN. SEE EDITORIALS.

PLYMOUTH CREEK API

THIRD PRIZE APIARY. ADAM CLARKE, LE MARS, IOWA. SEE EDITORIALS.



BUILDING DRONE COMB.

"Say, Doolittle, I am perplexed on the comb-building matter. When I wish my swarms of bees to build worker comb at this time of the year they generally build only drone comb. Can you tell me something about this?"

"All observing apiarists know that, as the season for swarming draws on apace, and the colony is about to cast a swarm, the queen ceases her prolificness, so as to be able to fly and go with the swarm, so that, when swarming does occur, said queen is scarcely larger than a virgin. Nature has so ordained things for two reasons, the first of which is that the queen can fly; for, if taken from the colony when no such preparation has been made, she can not fly at all, as she is so heavy with eggs. The second reason is that the queen need not be damaged by an over-accumulation of eggs before there is time for the bees to construct comb in the new home for her to deposit her eggs in. Thus we find that all good queens do not become fully prolific again until nearly a week has elapsed after the new colony has arrived at its new location or home."

"Well, what has that to do with what I wished to know? It was not about queens or swarming I wished to know just now."

"Just this: During this week comb has been built very rapidly, especially if honey is coming in plentifully, while the queen has not been able to keep up with the workers, owing to the reasons I have given you, the result of which is that the bees commence to build store comb, which is always of the drone size of cells."

"That is something I did not know about; but it does look reasonable that, when building cells for honey only, the size should be of the drone order. But why did you speak of good queens in this matter?"

"Because some seem to think that no drone comb is built by new swarms unless the queen is an old one, or one which is beginning to fail. I consider that the reason I have given has more to do with the building of drone comb by newly hived swarms, with the majority of bee-keepers, than does the failing-queen part; but I am free to admit that much more drone comb will be built where there is a failing queen with any colony building comb."

"Well, if you are right how is such a state of affairs to be avoided?"

"The way I manage is to give the colonies or swarms which are hived on frames not filled with foundation a brood-chamber of only a little more than half the size of the one from which they came, this smaller size being made by contracting the chamber of the new hive to the size I wish by means of dummies or division-boards, and also giving them a set of sections at the time of hiving them, so that the swarm may have rather more room in such a prepared hive than they would if the hive had its full complement of frames with no sections."

"Ah! I think I see. This gives them room to store the honey they gather in the sections rather than in the brood-frames."

"Yes, and in this set of sections there should be several containing partially drawn comb, or 'bait sections' as they are called, in order to coax the bees up into the sections for storing their honey. And where such a start is made at first in the sections this gives the bees plenty of room above to store honey, thus not crowding them in the brood-chamber, so that comb of the worker size is built below, and that only as fast as the prolificness of the queen demands it. As her ability for laying increases, more comb is built, so that, at the end of the white-honey flow, we have the frames in the contracted brood-chamber filled with all worker comb, and the sections filled with nice white honey."

"I see. But the colony can not winter in this contracted hive, can it?"

"No, not usually. After the white-honey flow is over, the dummies are taken out and the hives filled with frames of worker comb."

"But suppose I do not have such combs?"

"Then I should wait till the dark-honey flow commenced later on, and give the colony enough frames filled with foundation to fill the hive, when these would be drawn out into nice worker combs also, the same being filled with honey, and thus your colony be in good shape for winter."

"Then you would not try to make this colony build all the combs the hive contains?"

"No. Although it can be done, yet my experience goes to show that it is far better to buy foundation for the remaining frames to take the place of the dummies than it is to try to make the bees fill them with worker comb, when they will, as a rule, try to build drone comb only."

"Why not fill all the frames with foundation on the start, and not try to have any comb built?"

"You can do this, if you so feel; and where any one has no time, or does not have the disposition to do the work this plan requires, it is well to fill all frames thus, for it will secure worker comb in all the frames. But in the use of the plan as I have given it to you, the cost of the foundation is saved with those frames which the bees fill with natural comb; and, what is still better, according to my views, the bees are put at work in the sections at once, and a greater yield of the more salable honey is secured; for, so far as I have ever been able to see, the bees work in the sections to better advantage while the bees are building the proper amount of comb below than they will with no comb to build. In other words, these frames are filled, apparently, without the cost of any section honey, while it seems to give great energy to the colony so building comb."

"But won't the queen go up in those bait sections and put eggs in them, where only empty frames with starters are used in such a contracted brood-chamber?"

"She will be likely to. And I am glad you asked about this, as it would have slipped my mind to say any thing about this part of it if you had not. In all cases where empty comb is used above, over a brood-chamber having empty frames, a queen-excluder should be used, so as to keep the queen where we wish her. In this we have the advantage of those of the past, who had no perforated metal to use."

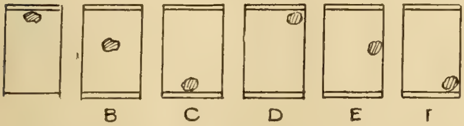
"But does not this queen-excluding metal hinder the work in the sections?"

"From many carefully conducted experiments during the past, I unhesitatingly say *no!*"

Heads of Grain
from different fields

STONES ON COVER FOR SHOWING THE CONDITION OF A COLONY.

A stone about the size of a man's fist placed on the cover of a hive so as to indicate the condition of a colony is a convenience that, when once adopted, will never be discarded. The system which I will here outline meets all requirements for me.



A stone placed on the front of the cover and in the center, shown at A, indicates that the colony is queenless; B indicates a queen-cell; C, a virgin queen; D, that a queen has been introduced; E, diseased brood; and F, that a colony is weak in brood or needs other special attention. When the colony becomes normal, just drop the stone on the ground.

Now, I do not intend that those stone signs shall take the place of the pencil, for no bee-keeper is more than half a bee-keeper until he has learned to use a pencil, *not in a book, but on the hive-covers.*

When using stones in this way, a bee-keeper always knows how many queenless colonies he has, and in what condition they are, by just glancing over the yard. Then when working a yard so marked, one-third of the labor is saved. If queen-cells are wanted you know just where to go to get them; or if you come to a colony with a surplus of brood you know just the colonies that are in need of it. In fact, the *only way* to work a yard properly is by using some such system of signs. LESLIE BURR.

Casanova, Cuba, April 10.

[Your arrangement to indicate the condition of the hives is a very good one. I have seen various modified forms of it in use; indeed, we have had a similar system in our queen-yards for the last ten years; but instead of stones we use small slates. We write the records on a special card tacked on the cover, then shift the position of a small piece of slate 2×3 inches from one part of the cover to the other, so that from almost any part of the yard we can see what colonies are queenless, what have introduced queens, what laying, tested, select tested, and extra-select breeders. A little stone or piece of brick will do nearly as well as the slate. In the filling of queen-orders this is often a great convenience, because the apiarist can make a bee-line direct toward the hive containing the kind of queen he wants. When he removes one he marks the card and then positions it to indicate that the hive will require a cell or an introduced queen very soon. The reason why we abandoned the record on the slate was that the slates sometimes become lost in windstorms, get broken, or, worse still, the records may be obliterated by a hard rain or made so indistinct as to be valueless.

I believe it is a common rule in any yard, where any thing is especially wrong with a colony, to put a stone, stick, or any distinguishing object, on the hive. At the very next visit the position suggests that the colony needs immediate attention.—ED.]

CROSS BEES; CAN THEY BE CROSSED WITH CAUCASIANS TO MAKE THEM GENTLER?

I have trouble with cross bees, and have spent at least $25 for queens in the hope of getting gentler bees. I made no increase last year, but requeened every hive, and now no one dare go near them. One man said he would burn them and quit. Could I cross them with Caucasians with good results? Where can I get Caucasians? I don't want to give it up, nor can I afford to requeen all again. P. T. LEMASTER.

Spartanburg, S. C., March 11.

[The Caucasians are said to be a very gentle race of bees. We expected to have some here before this, but they have not yet arrived. How much gentler than our Italians they are we do not know from experience. Crossing them with Italians may make a very desirable strain, combining the good qualities of both races in one. Perhaps you will be better suited with pure stock, which will be ready for delivery some time this season, we presume.

But from what you write it is my impression that you have not yet learned to handle bees so they will not be disposed to sting. One season I worked an entire month in our bee-yard rearing queens, and I did not get a single sting, and the yard had over 300 colonies and nuclei. But I was careful to handle the bees only when I knew they would be good-natured. I never allowed them to get to robbing; waited until the atmosphere was warm before opening any hives; and I also took great precaution to blow a little smoke in at the entrance, and a little over the top of the hive, and especially into the crack while removing a cover from a hive. This part is very important. With the right kind of management the average Italians can be handled without a sting.

I am free to admit that, if I had been extracting, and shaking and brushing the combs, it would hardly have been possible for me to go to the length of time I did. But I see no reason why one could not produce comb honey by using bee-escapes, and work with few or no stings. In your case it may be advisable to work for a while with bee-gloves.—Ed.]

E. W. ALEXANDER'S METHOD OF ARTIFICIAL INCREASE; FERTILIZING IN UPPER STORIES.

I have just read with great interest E. W. Alexander's contribution, on making increase, page 425. I am about to make 100 new colonies; and as I consider this the best method of artificial increase ever given to the public I shall surely put it to a test for myself. I am writing you this to know if any one has tried the plan of giving the queenless colony a ripe queen-cell or a caged virgin at the time it is set on top of the excluder, allowing her to become fertilized through an auger-hole in the back of the old hive before moving the same to a new location. What do you think of this plan where one has no laying queens to give them? If I can work this plan successfully it will be worth $100 to me.

W. H. Crawford.

Roswell, N. M., April 22.

[The plan of having a queen fertilized from an upper story above perforated zinc was originally described in Doolittle's book, "Scientific Queen-rearing." Modifications of the plan have been used more or less ever since. But to make it work, a honey-flow or light feeding is required. When used with any of the non-swarming plans it ought to work because the conditions would be favorable.—Ed.]

THE MATTER OF SCENT, AND ITS RELATION TO INTRODUCING QUEENS.

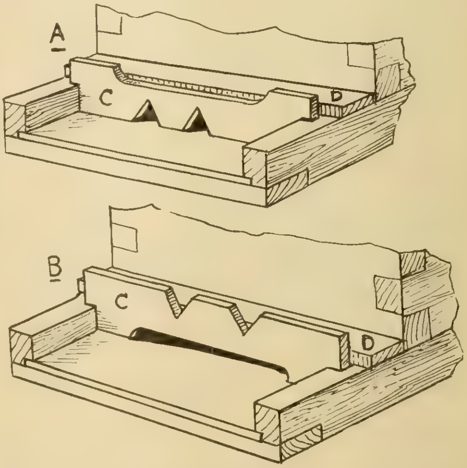
Ernest, tell A. C. Miller to buy a pair of cheap sheepskin gloves that smell strong of the tanning, put them right on his hands new, and go to clipping queens' wings and see how many queens he will have that the bees will not ball. I tried it once, but soon laid the gloves away, then washed the scent all off my hands, and had no more trouble. I presume Mr. Miller would say the queens were scared. Why should they be any more scared than with my bare fingers?

H. S. Wheeler.

Mt. Pleasant, Mich., Feb. 22.

AN ADJUSTABLE ENTRANCE-BOARD.

I am sending you a small model, a short section of front end of my bottom-board. Since I wrote you I have made some changes, and I think it is now about as good as I can get it. The rails and bottom-board extend far enough for an alighting-board. The front cleat will strengthen the bottom-board and hold it straight in front. The entrance-board can be made of wood, or galvanized iron, and can be used in three different ways—one or two bee-slots, ⅜ inch, or the entrance can be closed by having tin ears to close the slots; and when it is wanted you can change to the full entrance, one inch or 1¼ inches, by removing the entrance-board. The tin ears can be put on if the feature is worth it.



A shows contracted entrance; B open entrance; C, the adjustable entrance-guard; D, cleat.

The entrance-cleat is used for the entrance-board to rest against, and also to hold the hive just far enough to give the finger room to adjust the board

James M. Brown.

Pell City, Ala., April 6.

[It is an advantage, I am sure, to have an entrance that can be easily and quickly contracted without resorting to the use of pieces of lath, broken twigs, paper, or grass. Our single-walled hives now provide for three sizes of entrances, any one of which can be adjusted in ten seconds. The largest entrance is 1⅛ deep by the full width of the hive; the medium size is ⅞ deep by the full width; the smallest size is ¼ by 8 inches. The large size is used when hiving swarms or in the case of powerful colonies during hot weather. The medium size is for a general honey-flow when the colony is working busily in the fields. The smallest is used immediately following the honey-flow when bees will be inclined to rob, and at all times of the year when the weather is cool or cold. Your arrangement provides for four different sizes, and we see no reason why it should not give the same result as that secured by our arrangement.—Ed.]

ALL IN THE TASTE; IMPORTANCE OF SELLING HONEY IN A LOCALITY WHERE THE FLAVOR IS KNOWN.

I should like to give a little experience of mine that corroborates the remarks of Mr. R. A. Burnett, page 491, in regard to giving to each person the kind of honey he has been accustomed to. Last fall I shipped 25 cases of honey to Alliance, in the northwestern part of our State. They had been accustomed to Colorado honey; and those persons who had known no other, or those who had acquired the taste for Colorado honey, thought my honey very poor. One poor man declared he could not eat it, and said it made his little girl sick. On the other hand, those who had known white-clover honey in the East were delighted with it, one man exclaiming, "*That's* honey! If I could always get such honey as that I would not mind buying honey." And another one said it made him "think of home." So, I think too that there is much in the kind of honey the particular individual has been accustomed to. One who has always been used to the white alfalfa honey would naturally think the thicker, darker honey adulterated, while those who have been accustomed to the white-clover honey would find the alfalfa insipid, and lacking the qualities that he naturally associates with good honey. G. A. Wetherell.

Dorchester, Neb., May 11, 1905.

SUPERSEDURE IN COLD WEATHER.

In Gleanings, page 318, March 15, was an article which I sent you about "Supersedure in January." One warm day I looked in the colony in which I found the dead virgins, and found two cells that had not hatched because of the contraction of the cluster when another cold spell came on. There were also three cells that had hatched. The old queen was on the bottom-board at the back part of the hive. The young queen that was victorious was there and alive, though dark, showing, I think, she was reared in cold weather. There were no eggs in the hive, which proved that she was not mated. I found one or two drones in the hive also. The colony is of fair size, and in a ten-frame hive. I have taken particular pains to watch this colony on warm still days to see when the young queen comes out. I am certain that this colony superseded its queen in January. H. A. Ross.

Evansville, Ind., March 22.

[It is not possible, as I explained on page 318, March 15, that your queen was superseded in midwinter. All the conditions go to show that she died, or was superseded in the regular way in the fall, but not so late but there were eggs or young larvæ from which the bees could rear queens. It is not an uncommon thing for virgins to be hatched out so late in the fall that they live until the following spring; but if they go on that long without fertilization they will either disappear or turn out to be drone-layers in the spring.—Ed.]

HONEY ACTUALLY TOO THICK TO EXTRACT; CONDITIONS DIFFERENT FROM THOSE IN AMERICA.

We have at times and at certain seasons much trouble in extracting honey. It seems too thick and sticky, and won't come away from the combs without breaking them. I think our principal honey-producing plant (titree) is the cause of this. The honey from it has a splendid flavor, but seems too thick, as I have already said. I thought you might suggest some plan of steaming the combs and honey before extracting, or something of the kind to do away with this great trouble. We don't seem to be able to remedy it here. I thought some of the honey-producing plants in your locality might have the same disadvantage, and that, perhaps, some of your folks have had experience with the same. R. S. Douglas.

Fairview, New Zealand, Feb. 16.

[So far as I know, there is no honey so thick in this country but that it can be extracted in a warm room—that is, in a temperature of 70 or 80 degrees; but the celebrated heather honey of England and Scotland is said to be so thick that it can not be extracted. It is, therefore, left in the comb or sold in bulk. In your case I would advise putting up the honey the same as the beekeepers in Texas do, and sell it as "bulk" or "chunk" honey in tin pails, or even in square tin cans with large screw caps. This is the common mode of disposing of a great deal of honey in Texas, and there is no reason you could not pursue the same plan to advantage. Indeed, I do not know what else you can do unless you run exclusively for comb honey in sections.—Ed.]

DEEP ENTRANCES FOR CELLAR WINTERING.

Please tell me the objections to a ⅞-inch entrance for both winter and summer.

I placed my bees out the 25th of March for a fly—the first since Oct. 20, and all came through in very good condition. Two out of sixty died of starvation, with entrances ⅜-inch deep, and sealed covers. I intend wintering in the cellar with deep space below the frames, for I think it very important.

Bobcaygeon, Ont. J. D. Olver.

[The ⅞ entrance would be too large in the spring and fall, and altogether too large if the colony wintered outdoors. The large opening should be used only during the hottest part of the summer when honey is coming in freely, and the bees need plenty of flight room, or we may say elbow room, to go in and out of the hive. Nor is this all. The wide doorway makes it easier to keep the hive cool, thus permitting all the bees to be doing some useful work both in and out of the hive, when with a small entrance half of them might be loafing. But when the robbing season comes on, the full-size opening would be too large, and should be reduced to accommodate the then present needs of the colony. One of the things we have learned in these latter days is the value of an expansible and contractible entrance — contractible during cool or cold weather, and expansible in the hot part of the year when honey is coming in.—Ed.]

BEES WINTERING IN DANZENBAKER HIVES.

Do you hear good reports of bees wintering outdoors on Danzenbaker brood-frames? Have the losses been heavier as compared with other hives with the deeper frame?

J. Arthur Smith.

Hartford, Conn., April 10.

[We have had uniformly good reports of wintering in Danzenbaker hives. This hive is, to a great extent, double-walled. The closed ends of the frames and the end of the hive make two walls. The division-board on the other side makes another wall. If the exposed side, or the single-walled side, faces the south, the cold sides are reasonably well protected.—Ed.]

WINTERING BEES IN A DRY CAVE WITHOUT VENTILATION.

I went to great expense to put in a sub-earth ventilator. I tried it for three years, and found that the bees that were the furthest from the ventilator wintered the best. I closed the ventilator, and made every thing as tight as I could around the cave with double doors, and papered, and my bees wintered all right. The thermometer stands at about 40 from December to April. The cave is dry. Give me a cave that is dry and nearly air-tight for wintering bees.

Isaac Barby.

Radney, Ia., March 21.

[Some years ago sub-earth ventilators were discussed a good deal in the bee journals, and many of them were put in at great expense; but nearly every one of them was discarded sooner or later because they were either a positive detriment or no particular advantage. In the light of our past experience I am inclined to think the underground air-tubes of this kind brought in dampness, and dampness is always bad. Good clear dry air from above ground is, under some conditions, decidedly beneficial, provided that not too much of it is admitted at one time, thus reducing or increasing the temperature below or above 40. Where the temperature can be controlled absolutely at a uniform point, as in your case, ventilation might do more harm than good, for the reason that it would modify the temperature, making it too high or too low at times. For the other conditions when ventilation is beneficial, see Gleanings for March 15, page 292.—Ed.]

COMBS VS. STARTERS FOR SIBBALD NON-SWARMING PLAN.

Can we use a full hive of empty combs in place of starters in the brood-frames with the Sibbald non-swarming plan? or will the bees store the honey in the empty brood-combs in place of the super?

Bridgeport, Ct., April 10. F. Orelup.

[My impression is that the empty combs would not be as good as the empty frames of starters, for the very reason you suggest.—Ed.]

MAPLE SUGAR AS FOOD FOR BEES.

Maple sugar killed a strong colony of bees for me. I think it was not pure. Please give me your opinion about it.

Findlay, O., Mar. 11. M. H. Duyer.

[The maple sugar you refer to was probably pure. It could hardly be otherwise with the stringent pure-food laws in this State; but even if pure it may have been the cause of dysentery, as there is no food for winter use that is quite the equal of granulated-sugar syrup when it is fed thin, and well-ripened in the comb. But dysentery is not always caused by the food. Extreme cold or extreme exposure, rather, is liable to bring on dyesentery with any food, however good, before spring.—Ed.]

DISEASED BEES; BEE-BREAD; CLIPPING QUEENS.

I find in my apiary this season a very large number of bees running about on the grass and walks, apparently unable to fly; their wings seem fairly good, and the bees far from being worn out or feeble from old age. They are beautiful Italians, bred from your queens. The hotter the day the more bees seem to be running about. Can you tell what is the trouble?

Kindly tell me by which bees the bee-bread is consumed, and at what stage it is necessary.

Is "bee-bread" the proper term to use for pollen when prepared and placed in the cells ready for use?

Do you think the clipping of queens is injurious, or tends to shorten life or cause the bees to requeen, as many queens this season have been superseded?

H. Parrett.

Canterbury, New Zealand, Feb. 10.

[Very often one will find a good many bees on hot days apparently perfect in every way, but crawling around in the grass and on the sidewalks aimlessly, repeatedly making the attempt to fly, but without success. This phenomenon has been noticed hundreds of times, but so far no one has been able to tell whether it is due to one cause or several of them. In the spraying season thousands of bees are liable to be found crawling around in the grass as the result, probably, of poison. At other times there will be the same hurry-scurrying about of bees trying to fly, but failing, and this may be due to some germinal disease.

Bee-bread is the common name for pollen stored in the cells, mixed with a little honey. The designation is very apt.

So far as any one can see, the clipping of queens does not in any way prove to be any injury to the queen. Dr. E. F. Phillips, one of the entomologists at the University of Pennsylvania, says the wing structure is such that the clipping can cause neither pain nor injury to the insect. If there is an unusual amount of supersedure it will be due to some cause other than clipping.—ED.]

REARING QUEEN-CELLS IN BROOD-NEST BY MEANS OF PERFORATED ZINC DIVISION-BOARDS; HOW LONG CAN QUEENS BE KEPT IN SWARTHMORE MATING-BOXES ?

Is not the division-board used for the divided brood-chamber, described on page 11 of Modern Queen-rearing, made of queen-excluding zinc ? If so, why be so particular to have them fit bee-tight all round ? Will not uncapping honey stimulate the bees as well as giving sugar syrup ?

How long can queens be kept in the Swarthmore fertilizing-cages without injuring them for egg-laying? E. D. HOWELL.

New Hampton, N. Y., April 25.

[The division-board referred to is made of *perforated* zinc. It is true that the author says, "Make two tight-fitting zinc division-boards bound with wood." As he was talking about perforated zinc on the previous page, he probably did not think it necessary to describe the kind of zinc again. Although bees are supposed to pass freely back and forth through the metal he was particular to have it reach from cover to bottom-board, and from end to end of hive tight enough to prevent bees from passing around at any point. If the bees could get around, there would be danger that the queen might also. If the queen should get into the compartment where the cells were building, she would soon make short work of them.

Laying queens can be kept in Swarthmore boxes a month or six weeks. Usually it is better to take them out as soon as they are laying, send them away to fill orders, or give them to larger colonies where they will have a little more scope for egg-laying. We have practiced keeping laying queens in baby nuclei when we had no other place to put them. or until such time as we received an order for one or more.—ED.]

DO QUEENS GET DISSATISFIED IN A BABY NUCLEUS ?

This year I have been experimenting with baby nuclei. Do you think the queens get dissatisfied in such small hives, as they so often desert ? I had a big nucleus and a small one on the same stand. The large one was queenless, and the baby had a virgin queen in it. Some days afterward I examined the baby and the queen had gone ; and when I examined the big nucleus I found her in it laying for all she was worth.

Another time I prepared a hive for queen-rearing. I put in strips, and two days afterward I found 27 cells commenced. Seven days after that I looked again and found all the cells destroyed. I then looked through the combs, and, to my surprise, I found eggs and hatched brood. Thus a laying queen had taken charge of the hive. At the same time, one queen deserted a baby nucleus which I had placed about three chains from the apiary. Now, what I want to know is, how can you account for the hive being requeened? The queen must have come from the baby nucleus. If so, how did it pick out the only queenless hive in the apiary ? The old queen I killed.

Cambridge, N. Y. R. J. MELVILLE.

[In the case of the first instance I should say that the virgin, by mistake, went into the large box of bees rather than the small one. In our experience, virgins are not unerring as to their old entrances, and very often make queer mistakes. It is not an uncommon thing to find one balled in a hive with a laying queen. simply because she made a mistake and went into the wrong hive. As to the second instance, it is possible that the virgin was not entirely satisfied with her old quarters, being cramped, and hence wandered over to some other hive; but, more likely, she made a mistake; or it is possible there is a bee language by which virgin queens recognize by the behavior of the bees on the outside that such and such a hive is queenless.—ED.]

THE SIBBALD SYSTEM USED WITH SUCCESS IN CONTROLLING SWARMING.

I have received GLEANINGS for April 1, and was pleased to read your editorial, page 358, speaking of a new plan to prevent swarming. I practiced that plan successfully last season, with one or two frames of brood in hive No. 2. One removing of No. 1 prevents swarming after the appearance of queen-cells, except one hive that had capped queen-cells. That hive issued one swarm; 16 out of 17 were a perfect success.

M. BROUN.

North Little Rock, Ark., April 6.

FOUL BROOD NOT SO BAD IN CUBA.

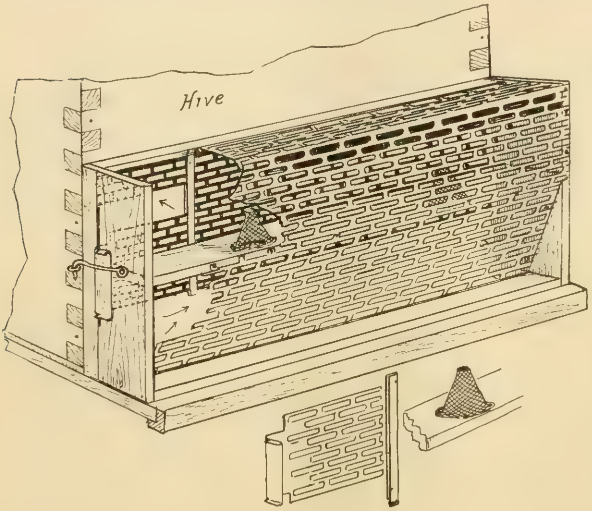
On page 484 Mr. Leslie Burr says "foul brood is one of the things that thrive in Cuba. It exists from one end of the island to another, etc." I take exception to this statement, for Camaguey Province is a pretty big piece of Cuba, and we have no foul brood here, nor have had any. Why will your correspondents who come to Cuba and run around a few miles on the outskirts of Havana talk of the island as if they were familiar with every nook ?

ROBT. L. LUACES.

Camaguey, Cuba, May 10.

DIBBERN'S QUEEN-TRAP FURTHER IMPROVED.

We mail you one of our latest improved queen-traps. We think you will find this a decided improvement over the one we first sent you. We will try to point out where we claim it an improvement over your Alley trap, though we find the model you recently sent is a decided improvement over the one sent us some years ago by Mr. Alley. To commence at the bottom, we use a ⅞ strip instead of full width of trap as in yours, leaving only a ½-inch vertical opening to the hive, having a ⅜×12 entrance. Also if the Alley is set on a sloping alighting-board like your Dovetailed hive, the top of the trap is ½ inch from the hive. Moth eggs also collect under the wide bottom. In our trap you will notice the holes through the center strip are very near the front zinc, with no square edge between, enabling the queen to go into the trap *at once*—a new feature. In the Alley, with ½ inch between zinc and hole, with a square edge, the queen will often be hours in trying to get through the upper row of perforations before finding even your large cones. The trap part as you have it is too shallow, and that wide upper strip makes it difficult to see the queen, if many drones are present. The little hole you have for releasing the queen is entirely too small, and in the wrong place. When the swarm is entering the new hive, the queen will be found trying to get through the lower rows of perforations, and would run right over such a small opening, though the nail were out, just as she often does over the tops of the cones. In ours the slide door in the rear zinc is a *new feature*, and is about perfection. You will see in our trap the rear zinc extends 1 inch below the middle strip. This is to prevent the bees when swarming from boiling over, and to get the queens and drones *behind* the trap—a valuable new feature.



Our trap has two wire hooks and screw-eyes to fasten it firmly to hive—a new feature. If no fastening is used somehow, by wind or bees, the trap is liable to be pushed away from the hive, with possible loss of swarms. In our trap the ventilation is much better than in the Alley, and it is much easier to see the queen when trapped.

Lastly, our traps are painted white, not only making them look neat, but enabling one to see much better.

Milan, Ill., Feb. 23.

[Your trap is an improvement in some respects, and in others I think it is open to some serious objections, the principal one being that it will not stand rough handling in the mails, for a large percentage of the traps we sell are transmitted to our customers in Uncle Sam's bags. The removal of the horizontal strip of wood or brace at the upper corner in front weakens the trap materially. In the mail-bags, or even in handling in the yard, or piling up for storage in the fall or winter, the perforated metal, where it bends at right angles at the top in front, would be almost sure to be jammed in, for there is nothing to support it. Then the small strip of wood in the rear, with a groove to allow the perforated zinc to slide, to move up and down, is very weak. It would be easily broken, and, moreover, there would be great danger that the slide would slip out of its groove. The basic principles of your trap could still be preserved in a modified construction, and yet give an article that would be fully as strong as the Root-Alley trap. I question, however, the advisability of increasing the space in the upper story of the trap over that in the Root model. We have used them every season with the reduced space, and never found any necessity for increasing it.—Ed.]

WOULD NOT A DORMANT STATE OF BEES IN WINTER ACCOUNT FOR FREQUENT LARGE QUANTITIES OF HONEY LEFT IN THE SPRING ?

If the bees consume as much honey during such winters as the one just past, which Prof. Henry, of the Weather Bureau, says "has gone into history as the worst on record," how is it that the bees have to eat regularly as we do to survive? My bees came through all right, and brought their honey through too, or so much of it that I am afraid they will not have empty combs for brood. Now, then, I wish to know how bees wintered on their summer stands can leave the cluster without freezing to death, and may not this dormant state, so long continued, account for so much honey being present at the close of winter? G. Houchins.

Huntington, W. Va., March 21.

[Generally speaking, bees with proper protection, indoors or outdoors, will consume less stores than under the other conditions where they have to eat to keep warm, resulting in overcharging their intestines, bringing on disease. But sometimes, even with proper protection, the bees will not be in that dormant state you speak of, and will consume largely of the stores until there is none within reach. If there is continued cold, such bees will die by reason of starvation and not because they freeze to death, if I am correct.

Bees wintered in their summer stands can not leave their cluster during a severe cold spell without becoming chilled. If it does not warm up in a few days they will die. If you look over outdoor-wintered colonies in the spring, you will find bees here and there dead that have strayed away from the cluster in search of stores. They became chilled, and in that state the little vitality they have is suspended, and death ensues. I do not know, but I have a theory that a well-fed bee will stand chilling much longer than one that has not had a good square meal for some time.—ED.]

OUR HOMES,

BY A. I. ROOT.

Owe no man any thing, but to love one another.—ROMANS 13 : 8.

If it be possible, as much as lieth in you, live peaceably with all men.—ROMANS 12 : 18.

One very important matter in any home is to preserve friendly relations with your neighbors; and inasmuch as most quarrels come from differences in deal, Mrs. Root and I have all our lives practiced or tried to practice paying cash down, so that every deal may be finished up as far as possible as it comes up day by day. When we were first married I think, however, we tried running accounts at the groceries and meat-markets, but at this time there was great need of the strictest economy; and on this account we very soon decided we could make our scant earnings go further by paying cash than by running up an account. And by the way, friends, I have got into such a habit of asking the price of every thing I purchase that I presume it will follow me all my life. No doubt I am laughed at; but I can stand being laughed at if by so doing I can set a good example before the younger ones. For instance, I never stop at a hotel without asking the price of lodging and breakfast. Oftentimes I see people with comparatively small means pay more than I do for the same accommodation just because they did not make a price beforehand. Many hotels have different prices for different accommodations. In the city a clerk will say a room will be 75 cents on the first floor above. But you can have the same kind of room exactly for 50 cents, by going up another stairway. Now, I do not know how you feel about it, but, even if I am 65, I can afford to go upstairs and down for 25 cents. I have been told it looks small, and as if I were hard up, to ask about prices. I can't help it. The saddest part of it is, that some hotels will give you the *very same room*, no matter whether you pay 50 or 75 cents. But we are not going to talk about hotels just now. Of course, there are good Christian men in the hotel business, as well as those who have little or no conscience.

What I wanted to speak of particularly in this talk is purchasing the every-day commodities of life—food, clothing, etc. Mrs. Root and I still pay cash down for milk, butter, eggs, groceries, meat, fish, etc. The younger ones say it is a lot of bother to make change so many times. That is true; but Mrs. Root has three little dishes—one to hold pennies, one for nickels, another contains dimes. Quarters and half-dollars she keeps in her pocketbook. When the boy brings the meat, and tells her the amount, she can take up the right change almost in an instant, and the transaction is done with.

On page 510 I spoke about the advent of the telephone, and its effects on our relations with our neighbors, especially those who supply our daily needs. It surely is a wonderful thing, and we ought to thank God oftener than we do, that the housewife can stand right at her kitchen table and ask the dealer what he has to-day, what the price is, and when he will be making a trip in her neighborhood. My friend, if you do not do that last thing, let me beg of you, out of a neighborly and Christian spirit toward your grocer, that you avoid asking him to make a long trip to bring some needful article. Well, the younger members of the family say you not only save time by paying bills monthly or quarterly, but you avoid *having to pay for things twice*. This last matter I have put in italics is to be the main point of my talk to-day; but before we get to that I wish to discuss this matter of ordering things sent down without inquiring the price and putting down the money.

My friends, I have stood on both sides of the counter. In fact, I have been on one side or the other pretty much all my life, and I expect to be there yet as one who either sells or buys; and I discovered long ago (or at least I think I did), that you make a big saving by not only carefully inquiring the price, but by carefully examining the article before you put down the money. May be you will say I ought to be ashamed of myself when I acknowledge that, if you are buying something of *me*, it will be better for you to ask the price than simply to order it and say nothing about the price. I know there are lots of Christian men in business, and there are men who will look out for the interests of an absent customer just as well as or may be better than they would if he were present during the deal. But for all that, when you send an order anywhere for something you want, and say nothing about the price, you will, *as a rule*, be charged more than if you describe the article and ask for the best figures before purchasing.

The present age is somewhat to blame for this state of affairs. We hear about millionaires who throw down a bill or a coin and say, "No matter about the change." In such a case, of course, you are at liberty to take 50 cents for something that has a market value of only 25 cents. But I do not like that way of doing business. It is demoralizing. The newsboys sell papers for a cent or two cents when they can not do any better; but there is a tendency to encourage them in asking a nickel where they judge from the looks of their customer that he would not mind it. As a consequence, lots of people pay a nickel who really can not afford it. Besides, they dislike to say any thing about so small a matter as two or three cents. This is all wrong.

Now, do not stop reading this paper because you think I am going to keep on talking about saving pennies. Let us take a big jump. Yesterday's daily announced that Secretary Taft declared he would purchase vessels for carrying freight to the Panama canal of foreign countries unless our American ship-builders stopped putting their prices away up for every thing wanted for the Panama canal. At this there was a big jangle, and a big protest from the American people. They thought it an outrage if the people of the United States should not have the privilege of furnishing all the material for the Panama canal. "All right," replied our square-footed old friend. "You fix up the price to Uncle Sam reasonably near what you would to anybody else, and we will trade at home. If you do not, we will buy where we can buy the cheapest."

I have a little plant growing in my greenhouse, named "Honesty." It is an old-fashioned plant that has been recently brought to the front. I told the children in our Sunday-school, as I held up one of the plants, it was "old-fashioned Honesty." Now, I fear there are some people who begin to think other kinds of honesty are old-fashioned; and that, in order to get "into the swim," and keep up with the times, we must follow the trusts, Standard Oil, big railroads, etc., and "charge all the traffic will bear." God forbid that this fashion should go any further; and our good President is bound that God (through our great rulers) *shall* forbid such a fashion; and in order to help forbid this kind of dishonesty it behooves each and every one of us—yes, right in our homes, and, if you choose, right at the kitchen table—to insist on fairness and *old-fashioned* honesty. Explain to the dealer exactly what you want, ask him what the price will be, and when the boy brings it down insist to a reasonable extent on having goods according to the agreement. Please do not misunderstand me, and think that I mean that people who are well-to-do should make a row about a few cents or a nickel. It is not the money that is involved. It is, rather, a matter of education. Let us teach the boys who bring the meat and groceries, honesty and fairness; and let us set the example by always preserving a Christian spirit.

One reason why Mrs. Root and I have adhered to the cash-down principle all our lives is to avoid being asked to pay for things twice. But we have not succeeded after all. Every little while a bill is brought in for something that they claim was not paid for. If it is a small amount we have been in the habit of paying it. Investigation shows sometimes that some of the family made the purchase in question, and either forgot or did not understand our fashion of spot cash. Sometimes after a troublesome investigation we find the stuff was sent to some other Root than A. I. Root. Once the boy who delivered the stuff kept the money and reported that it was not paid. He confessed it, however, when sufficient pressure was brought to bear.

The worst trouble in these transactions was that the dealer waited a month or two before informing us. One person, a good friend of mine, waited for two years before he told me he thought we must have forgotten a bill I was owing. He excused himself by saying that he had let it run because he felt a little backward about dunning people who were usually so prompt.

So many things like that come up that I finally put a notice in our family paper, saying that, if I owed anybody, I wanted the account sent in at once, for it was my wish to pay spot cash everywhere and to everybody.

Now, you may think it a little singular, but we have almost a quarrel in trying to avoid running accounts. Let me mention one thing right here with emphasis. It is a very bad plan to pay cash part of the time, and have the account charged part of the time. It is bad for the dealer, and bad for you. You must do either one or the other. For instance, The A. I. Root Co. has a running account at a certain hardware store. This is so the messenger boy who makes daily trips for the mail can bring things wanted for the factory. Well, I told them when I wanted things for myself individually I would pay down so as to save them the labor of book-keeping. Well, sometimes I would pay down and sometimes I did not. I was obliged to own up once or twice that I went off with stuff and forgot to say any thing about pay.

One day I was wondering if this state of affairs—this being obliged to pay for things twice—belonged particularly to Medina. So when I was visiting at different places I inquired of relatives if they had any such trouble. A relative in Xenia replied, "No end of trouble. A man in our town brought in a bill of 15 or 20 dollars, over two years old. He said I had never paid it. It was so long ago I had lost my receipt. We had a big jangle about it, and were going to have a lawsuit. Just then I blundered on to some of my old books and papers, found the account-book, and made him acknowledge I paid him the money just as I stated it."

And so I hear of similar cases. A person told me he had the same fight we did to pay spot cash so as not to be asked to pay same bill twice. In arguing the matter with a merchant he urged that a man who paid spot cash ought to have little *better* prices, if any thing, than the one who obliges the merchant to keep books and lose more or less bad accounts, etc. He said this merchant replied that he did not want the trade of a man who always pays cash down for every thing he buys. I suppose what the merchant meant was that he would prefer a customer who had a book account, and paid that account without grumbling, to one who usually paid spot cash and then demurred when asked to pay for something he thought he did not have.*

In discussing this matter I have heard people claim that the dealers in *their* town have actually made a *business* of trying to make people believe they had not paid a bill so as to get payment a second time. This is not only an unchristianlike spirit but I think it is unreasonable. There *may* be men in business who would want you to pay twice, but I think they are *very* rare. In all transactions of this kind we need to be very careful to cultivate the beautiful spirit suggested in that passage in the 13th chapter of First Corinthians—"Is not easily provoked; thinketh no evil."

I told you I had stood on both sides of the counter for many years of my life. Well, I am sure from what experience I have had that the men who stand on both sides *try* to do a fair and honest business. Perhaps this may refer more especially to small dealers and merchants. When we get among the trusts and millionaires, I am really afraid that strict honesty *is* getting to be somewhat old-fashioned. Now, the younger members of our family suggest a remedy; and although I do not just like this remedy I am afraid that, with present modern improvements, it is almost the only one. It is simply to put your money in the bank and have a check-book, and pay your bills by check. This might do in a town where there is a bank; but it would be quite inconvenient in small towns or in the country. Under the circumstances there seems to be no other way than to keep cash accounts. Put down in a book with date, in some way so you can read it, all the money that comes into the home, and all that goes out; then you have proof that will stand law, that you have paid certain bills. You may say that such a course would be entirely out of question with the cares and duties that press you, especially since it is so difficult to get competent help either on the farm or in the home. But, my friend, you will probably make big wages by keeping some such cash account. I wish to illustrate how much such a cash account would save by some of my experiences.

When I made one of my trips to Florida I bought some supplies of a dealer. Months afterward I was asked to pay for them. I declared they were paid for, but I had nothing to show for it. The dealer and I were good friends, and we talked the matter over; but, although I felt sure I had paid the bill, I could not prove it. After I gave up and decided to pay it again I happened to think that I sent the money up by the mail-boy. When called up he said he remembered it perfectly, and he was even able to fix the date. The dealer, who kept a cash account, turned to his books, and found that on that day they were the amount of the bill ($5.00) ahead, and they had never succeeded in telling where it came from.

At another time I took an outfit down home to see if Mrs. Root approved of it. After I decided to keep it she kept telling me I must go up and pay the bill. Now, she thinks that, as I kept neglecting it, she took the money to the store-keeper and paid it herself. But they felt equally sure they never got it. As the bill was not presented till several months after I bought the goods she was obliged to confess she could not tell to whom she gave the money; and she could not remember, either, any thing about a receipt, so we paid for the goods, possibly a second time. When I asked the proprietor to examine their books as the other dealer did he said they did not keep any cash account that would enable them to tell whether they had so much money ahead about that time or not. Surely, every *merchant* should keep some sort of cash account so as to help trace transactions (of about $10) like this.

Now, do not imagine that I am insisting that I paid the money twice. I have every confidence in my good friend who keeps the store, and I have never thought of feeling any less confidence in him on this account.

A friend of mine thinks she has paid a doctor's bill of thirty or forty dollars a second time. She feels sure she had a receipt in full, and that it lay around the house until she thought it was of no use, and destroyed it with other papers. The physician, unfortunately, let the account run until it was several years old. He then brought it in, in connection with a more recent bill. He keeps a book of receipts, and each receipt has a stub. When a receipt is given to a patient the stub remains in the book. His book does not show any stub of such a receipt as she claims to have had around the house until it was thrown in the waste paper with other receipts. Under the circumstances the bill was paid—paid over again, as she thinks; paid for the first time, as the doctor thinks.

I have mentioned these home transactions at length to show how much a brief cash account may be worth. I said in each case where I was concerned that I would rather lose it myself than to have my neighbor lose it, if one or the other must lose it; in one case I believe each stood half the amount in question. Another thing, after such a transaction has been settled and dropped, do not allow Satan to put it in your mind again. Forgive and forget—that is, if there is any thing to forget. Give your neighbor credit for being as anxious to leave this world with a clear conscience as yourself; and do not, for Heaven's sake, allow a few cents (or even a few dollars) to prejudice you or spoil your faith in humanity or make you unhappy. When we come to die, what difference will it make, any way, whether we have a few dollars more or less? Let us strive, in the language of our text, to "owe no man any thing, but to love one another," and, so far as it lies within us, to "live peaceably with all men."

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* There is a hardware store in Traverse City where they have two prices for every thing—one for the spot-cash customer, and another where the account goes on the books. This seems only fair and honest; but I am told it does not work. When a merchant really opens a cash store he must explain to everybody and make *no* exceptions. Such a grocery was once started in our town. One of our best-known and wealthiest citizens went for some butter when dinner was already waiting. But he had changed his clothes, and his money was in his other suit. The cash-store man said, "Mr. B., I hope you will excuse me if I ask you to leave the butter on the counter while you go back for the money." He explained, as fully and as pleasantly as he could, that he was obliged to make no exceptions. But the butter *remained* on the counter, and it broke up a friendship of years' standing, not only between the two men, but between the two families. Who was right and who was wrong in this transaction? Good Christian people will be found on both sides, and so, perhaps, the question can never be settled.

THAT WONDERFUL PRAYER, AND THE COMMENTS BY THE POET BEE-KEEPER.

Dear Mr. Root:—I am a reader of your lay sermons in GLEANINGS. I wonder if you will care to see my comments on the Lord's Prayer. At any rate, I take the liberty to enclose a copy. Assuring you of my admiration for the work you are trying to do, and praying that you may be spared long to continue it, I am Very sincerely,

Forest City, Ia. EUGENE SECOR.

OUR FATHER—Oh the cheering thought
That God our maker may be sought
As one who feels our needs—
That, as a child in confidence,
We may approach Omnipotence—
He, like a father, heeds.

WHO ART IN HEAVEN—above our strifes,
Our petty cares, the rounds of life's
Increasing doubts and fears;
In calmness and in kindness he
Looks down in love on you and me
While riding heavenly spheres.

From striving, faithless, godless marts,
Shall men with unclean lips and hearts
Say *HALLOWED BE THY NAME?*
May lips be pure that speak thy praise,
And hearts respond in holy phrase,
For angels voice the same?

THY KINGDOM COME—if I so pray,
Do I assist to bring that day—
The day when he shall reign?
And am I ready if my prayer
Be granted? Would I not forbear
And cling to worldly gain?

THY WILL BE DONE—Lord, teach us how
To say this prayer, and meekly bow,
Although the heart be riven.
May we be granted needful aid
Until thy will shall be obeyed
ON EARTH AS 'TIS IN HEAVEN.

GIVE US THIS DAY OUR DAILY BREAD—
From our own toil may we be fed,
Not others' food we ask;
But when we do our very best
With cheerfulness, may we be blest,
Blest in our daily task.

FORGIVE OUR DEBTS—they're many, Lord,
AS WE FORGIVE—ah! that is hard,
OUR DEBTORS are so slack!
The grace of mercy, Lord, we plead,
To feel our brothers' urgent need,
Nor every farthing take.

LEAD US—May we in faith be led
Where duty points the way, instead
Of standing, useless, still.
NOT INTO TEMPTATION—unless
To test the love our lips profess,
And the fiber of our will.

But if the tempter visit us,
And begs a temporary truce,
Amid the soul's upheaval
Be thou our strength, our sure retreat;
Let not the powers of hell defeat—
DELIVER US FROM EVIL.

Friend S., may the Lord be praised because he has put it into your heart to give us this beautiful poem on that wonderful prayer. I am sure it will give every reader of GLEANINGS a spiritual uplift, especially if he reads it several times over as I have done; and it has seemed to me that the whole world just now needs this prayer, and the comments you have made on it, more than it ever needed it before. In the great rush for gain and the struggles for office it would look as if honesty and fidelity were getting to be something old-fashioned and in danger of being snowed under out of sight. "What shall it profit a man if he shall gain the whole world and lose his own soul?"

DISREGARDING THE LAW IN RUNNING AUTOMOBILES.

It rejoices my heart to see that our excellent friends of the *Farm Journal* have suggested something in regard to running automobiles on our common roads where all good people can stand together, and be in agreement. We extract from their issue for June 1 the following:

(Model for handbill, or poster, to be put up in every neighborhood where drivers of gasoline-engines violate the law. See Farmers' Problems.)

AUTOMOBILES, WARNING!

We, the undersigned citizens of............ Township, County of ...., do hereby warn all owners and drivers of automobiles that we have combined to protect our people against injury to person and property from careless and reckless driving; and that we are resolved to bring punishment to all violators of the automobile laws of the State, without fear or favor.

1. Therefore we warn you that, if you run your machine faster than the law allows;
2. If you do not obey the law in meeting and passing vehicles drawn by horses;
3. If you attempt to get away after causing a runaway, or other accident, without giving satisfaction; and,
4. If you attempt to use our roads without having a proper license, or if your license number is so obscurely placed or covered with dust that it can not plainly be seen—

We pledge ourselves to leave no stone unturned to vindicate the laws with respect to the use of our public roads by all kinds of road engines.

While we have no controversy with any automoblist who decently regards the safety of our citizens and obeys the laws for their protection, the reckless unprincipled driver will find that, when he enters our borders, he is in a hostile country, that he is our eneenemy, and will *receive justice but no favors;* he will be arrested and punished, as he deserves to be.

We invite the co-operation of all automobilists who themselves obey the law; and

We request all citizens of the township, both men and women, to help us in this work by having any or all persons seen or known to violate any of the provisions of the law arrested and brought before the nearest magistrate. We advise the use of the telephone, when necessary, to warn the neighbors ahead.

Signed by:

We call particular attention to the following sentence: "We have no controversy with any automobilist who decently regards the safety of our citizens, and obeys the laws . . . for their protection." Perhaps I should mention that one of our friends calls my attention to what I said about running my machine over rough roads, on page 555. I am glad to tell you that I did not violate any law whatever. In Ohio, automobiles can be run at the rate of 20 miles an hour in the open country. This would be at the rate of a mile in three minutes. Owing to the roughness of the roads I did not come anywhere near that speed. The speed was remarkable only because of the condition of the roads, but no faster than a horse might travel on a good smooth road. Now let us unite in a grand effort for the *enforcement of law* against saloon-keepers, fast drivers of horses or automobiles, or anybody else who transgresses.

SECRET OF THE SUCCESS OF THE JAPANESE.

It is an open secret, friends, and very simple. The Japanese are a comparatively temperate people, while the Russians are notoriously intemperate. Now, notwithstanding this great object-lesson standing out so prominently before the whole wide world, the present Governor of Ohio is more anxious to be "fair" to the saloon-keepers, and to help them plant and hold places of iniquity in the midst of our homes, than he is to be "fair" to the temperance people and to the churches of Ohio. God forbid that he should ever be elected to serve another term!

THE JAPANESE AND TOBACCO.

Japan absolutely prohibits and prevents the smoking of tobacco by persons under twenty years of age. That is the sort of regulation much needed in the United States of America, as well as everywhere else.—*Hartford Times.*

Perhaps that is another reason why the Japs are beating the Russians. May be some of you will laugh at me; but I think the time is coming when the user of tobacco will have to take a back seat—that is, where the very best mental, moral, and physical strength are in demand.

PAYS HIS WAY ON THE RAILROADS.

We extract the following from one of our home papers, the Medina *Gazette:*

President Roosevelt has taken the stand that he can accept no free transportation from railroads, and pays his fare the same as any private citizen. His recent tour of the West was at his own expense. Good enough!

Now, then, let everybody follow the example of our good and wise President. Every member of The A. I. Root Co. pays his way when traveling, and has done so for years. If the railroad company puts an advertisement in GLEANINGS it is charged up for it just the same as other people.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

SWEET CLOVER AS A FORERUNNER OF OTHER VEGETATION.

The following, from the pen of Abner Wilson, of Lenawee Co., Mich., in a recent issue of the *Ohio Farmer*, suggests that sweet clover may prepare poor or barren ground for the growth of other crops, much in the same way that it sweetens the alkali soils of the far West, and prepares the land for general farming purposes:

We have sweet clover growing in abundance on our roadsides here, but I have not observed any instance where it is growing to any extent in cultivated fields. When I was a boy our roadsides were covered with many weeds. They were generally pastured down into the ground with sheep and cattle. Later, ragweed grew abundantly. Some 12 or 15 years ago sweet clover commenced to grow in patches. It was undoubtedly distributed over wide extents of territory by the wheels of vehicles and not by any hand-sowing. Now I notice this: Where the clover has grown thick for a few years it seems to die out and give place to our natural bluegrass. In other words, our friend the sweet clover (melilotus) has performed its mission—that of growing upon and enriching an otherwise barren soil, leaving its legacy, the nitrogen nodules, which are said to be the same as on alfalfa. Who would not rather drive along a road with the perfume of the sweet clover coming to him from both sides than the hay-fever-promoting ragweed pollen?

ALFALFA AND ITS MERITS "BOILED DOWN."

Although the following is taken from an advertising leaflet of a Western grower of alfalfa, it contains a great deal of valuable information. In my travels during the past season I have been very much pleased to find patches of alfalfa more or less in size, growing almost everywhere. Try a little patch in your garden if you can not do any better.

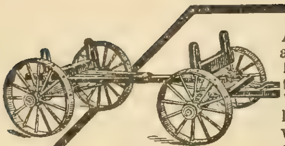
ALFALFA'S MERITS—IT IS THE BEST MORTGAGE-LIFTER EVER KNOWN.

Alfalfa is better than a bank account, for it never fails or goes into the hands of a receiver. It is weatherproof, for cold does not injure, and heat makes it grow all the better. A winter flood will not drown it and a fire will not kill it. As a borer it is equal to an artesian well; it loves water, and bores to reach it. When growing there is no stopping it. Begin cutting a twenty-acre field; when your last load of hay is handled at one end of the field it is ready to cut again at the other end. For filling a milk-can, an alfalfa-fed cow is equal to a handy pump. Cattle love it, hogs fatten upon it, and a hungry horse wants nothing else. If your land will grow alfalfa you have the drop on dry weather. Once started on your land alfalfa will stay by you like Canada thistles or a first-class mortgage, but only to make you wealthier and happier. Evidences of the profitableness of alfalfa on irrigated land in the semi-arid regions multiply from year to year. Best results are obtained in Montana, Utah, Wyoming, and Idaho, by sowing in May or June.

DIRECTIONS FOR SOWING.

For dry farms, for raising seed, 6 to 8 lbs.; for hay, 8 to 10 lbs. Irrigated land, 10 to 16 lbs.

Be very careful to have the land well worked and leveled. The leveler the land the closer you can cut the hay. If sown with drill, put seed in from one to two inches. If sown broadcast sow evenly over the land, then drag once with light harrow. Will grow best in gravelly or sandy land. Heavy clay or alkali land does produce good alfalfa.



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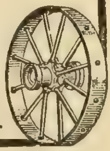

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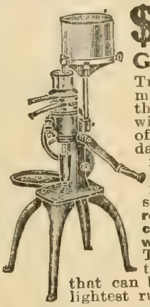

Sheep-Raising Highly Profitable

Sheep-raising is a money-making business when directed with care, intelligence and experienced foresight. *Blooded Stock*—that excellent, high-grade stock paper—will devote its entire June issue to Shropshire Sheep. The contributors to this number of

Blooded Stock

are widely known in sheep circles as having a well-balanced experience. They will write from the practical side and tell how you can imitate their success. Chandler Bros., Iowa, and Richard Gibson, Ont., Can., will be only two of many to warn you of the pitfalls of sheep-raising and teach you successful methods.

The July issue of *Blooded Stock* will be exclusively given up to Duroc-Jersey Hogs. Don't miss a single issue. 25 cents a year.

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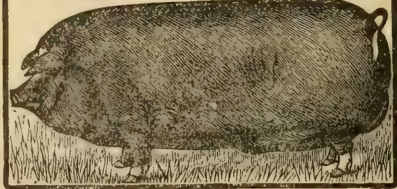

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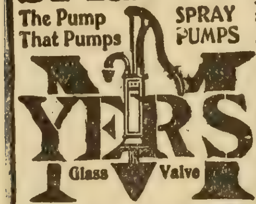

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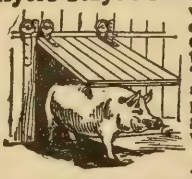

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By Anna Botsford Comstock.

THIS is a charmingly written manual, the first purpose of which is to show the uninitiated what they are missing by not joining the ranks of bee-keepers. The outfit, first steps, and methods are given clearly and in detail; and the author's well-known literary ability has combined with her enthusiasm for the subject to produce a very unusual volume.

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How to Keep from Keeping too Many Bees,
The Hive and How to Handle It,
How to Produce Extracted Honey,
How to Make Beeswax,
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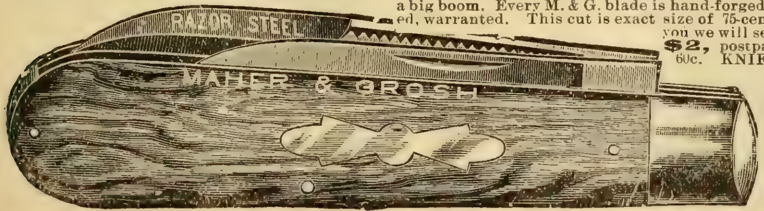

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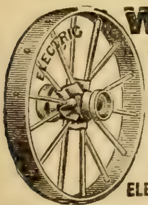

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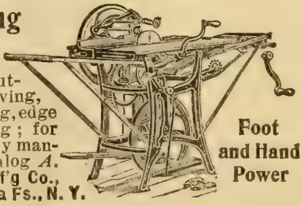

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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

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WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange 10 or 25 Danz. supers (new) for uncapping-can, comb-bucket, or wax-extractor.
THOS. S. WORK, Fort Morgan, Colo.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
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WANTED.—To exchange White Wyandotte eggs or stock, for beeswax, old combs, or solar refuse. Small utility flock for sale cheap. Also 12 S. C. B. Leghorn hens. H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
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WANTED.—Young man with bee experience wishes to correspond with bee-keepers in first-class honey localities with view to partnership or keeping of bees on shares. Let me hear from you. Address
W. M., care of Gleanings, Medina, Ohio.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

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FOR SALE.—Leather-colored Italian queens, 50 cts. each. H. A. ROSS, Evansville, Ind.

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FOR SALE.—Apiary complete of 140 colonies, house, 80 acres of land; good water-right; near good school.
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FOR SALE.—Dittmer's foundation, 25 lbs. light brood at 40 cts., and 100 ten-frame Dov'd bodies, painted, used one season, at 25c. C. B. THWING, Fayetteville, N. Y.

FOR SALE.—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. JNO. M. WHEELER, Winchester, Ky.

FOR SALE.—First-class, second-hand, two-story chaff and single-wall hives at half price of new ones.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
THE HYDE BEE CO., Floresville, Texas.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—My home and apiaries, consisting of 258 acres of land and considerable improvements, over 250 good colonies of fine bees; established honey trade and room for large apiaries. Will sell all together or separate, as desired. Don't write unless you mean business.
J. E. CHAMBERS, Vigo, Texas.

FOR SALE.—The busy man's method of rearing the best queens; saves brood, time, and patience; rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere.
E. H. DEWEY, Great Barrington, Mass.

FOR SALE.—On account of departure, 150 two-story eight-frame colonies; most frames wired; Italians and hybrids; sold cheap if taken in the yards; ideal location and fast-growing retail market; one failure in 20 years.
G. P. HOWELL, 6101 Dauphin St., New Orleans, La.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once.
HILDRETH & SEGELKEN,
82-84 Murray St., New York City.

FOR SALE.—Two and one-half acres of land, nicely covered with mesquite trees; good five-room house; 3000 yards steel tank full of water from the roof; located 400 yards from S. A. & A. P. depot, 50 miles south of San Antonio; house insured for $500; just the place for a bee-keeper or queen-breeder. To be sold at a bargain. Write or call quick, as this will be sold cheap.
UDO TOEPPERWEIN,
1322 S. Flores St., San Antonio, Texas.

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case),	**$8 50**
In Chaff hives	**9 50**
Bees in any style of hive desired.	
Italian queens, tested,	**$1 25**
Italian queens, untested,	**1 00**
The best veils	**40**

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

MY GOLDEN BREEDERS gave me over 300 lbs. of honey each, last year; two years ago over 400 each. Their untested daughters are 75 cts. each, or $8.00 per dozen. Tested, double the above prices. Breeding queens, $5.00 and $10.00 each.
Geo. W. Cook, Spring Hill, Kansas.

DANZENBAKER HIVE.

"Facts About Bees," a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. **Send for it.**

THE Danzenbaker Hive

THE COMB-HONEY HIVE.

Three points of Excellence:

QUALITY.

You can produce better-looking honey.

QUANTITY.

You can produce more of it.

PRICE.

You can get more per pound for it.

THE A. I. ROOT CO.
MEDINA, OHIO

Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

Union Bridge, Md., Feb. 9, 1904.

The A. I. Root Co., Medina, O.

Gentlemen:—I saw in a recent issue of your paper that you have a department called "Reports Encouraging." I shall send you my report.

I use the Danzenbaker hive and will give you report of the same, as the few Dovetailed hives that I use do not compare at all with the Danzenbaker. One colony gave me over one hundred pounds No. 1 white honey, and the rest averaged about sixty, with an increase by natural swarming of one hundred per cent. A friend of mine who uses all sorts and kinds of hives in his apiary succeeded in making scarcely enough honey to pay for the foundation used in the sections. This was about two miles from my apiary. Long live the Danzenbaker hive. It is just the thing for this locality.

Yours truly,
J. B. Hollopeter.

⁂

Mallet Creek, O., Sept. 25, 1902.

I now have 250 colonies of bees, of which 170 are in Danzenbaker hives, and shall have all my bees in Danzenbaker hives next spring. During the past poor season. 30 or 40 of the colonies in the Danzenbaker hives gave over 100 pounds surplus. On the average I get more than double the amount of honey from these colonies that I do from those in the old chaff hives. With a seven-inch telescope cover, the Danzenbaker hive winters the bees better than the chaff hives. Vernon Burt.

I have used both square and tall sections in all my apiaries five years, and I know from practical experience that it will pay to discard the 4¼ sections, and use only 4x5 sections, and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hives. I have made *more money* this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made a ton of honey. When it comes to sales, I get more for the 4x5 sections, and have no work in cleaning them. I ship them as I take them from the super. This is not the case with the 4¼ section. I make honey to sell, and anything that sells the best, and for the most money, is what I want out of the bee-business. S. D. Matthews.

In Gleanings, p. 931, Dec. 15, 1899.

⁂

Rock Valley, N. Y., Feb. 22, 1901.

My bees gathered no surplus after July 1. I had only 1200 pounds, but I obtained a fancy price—15½ for "Fancy" and No. 1 white, and 14½ for No. 2 here at my station for all the Danzenbaker 4x5 plain sections used on our hives, while I got only 14 and 13 cents per pound for the 4¼x4¼ square sections, and I consider that much difference is worth looking after—don't you? The Danzenbaker hives doubled up, two brood-chambers, are in fine condition, even better than my double-walled hives. I intend to build a bee-cellar and work off my double-walled hives as fast as I can, and get the Danzenbaker hives. Very truly yours, J. L. Haight

The A. I. ROOT CO., MEDINA, OHIO.

Place Your Orders Now.

ITALIAN QUEENS

Either GOLDEN or HONEY QUEENS

Our Goldens will come up to any other Golden strain. Our Honey Queens are what some term "Red-clover Queens." We always call them honey queens. :::

Before July 1.	1	6	12
Untested	$ 1 00	$ 5 00	$ 9 00
Warranted Tested	1 25	7 00	13 00
Tested	1 50	......	......
Select Tested	2 00	......	......
Breeders	5 00 and up.		
Two-frame Nucleus (no queen)	2 50	14 00	25 00

When queens are wanted with nuclei, add price of any queen wanted. We guarantee safe arrival of all queens and nuclei. Our breeders may be returned after 30 days, if satisfaction is not given. Cash must come with all orders. Orders are booked and filed in rotation. We book orders for next season. Safe arrival guaranteed of all stock. We ask a trial order. Do not send personal checks unless you add ten cents for collection.

D. J. Blocher, - Pearl City, Ill.

Bees, Queens, and Nuclei

From the best stock. We carry a full line of bee-keepers' supplies also. 64-page catalog sent free.

J. M. Jenkins,
Wetumpka, Ala.

PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and, being long-tongued, best honey-gatherers. **Prizes** —VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U. S. A., 1904. **The Highest Award.** Extra select breeding queen, $3 00; six. $16.00; dozen, $30.00. Selected queen (young tested), $2.00; six, $11.00; dozen, $20.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

Anthony Biaggi,
Pedeville, - near Bellinzona, - Italian Switzerland.

This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. In writing, mention GLEANINGS.

ITALIAN QUEENS.—Fine, northern-bred; originated from best long-tongued "Red-clover" breeders in the United States; work on red clover; bred in full colonies; under swarming influence; noted for their excellent honey-gathering, wintering qualities, and gentleness. Untested, $1.00; six, $5 00. Tested, $2.00; six, $10.00. After July 1st: 75c, $4.00, $1.50, $8.00. Satisfaction guaranteed. Write for full descriptive list.
Isaac F. Miller, R. F. D. No. 2, Brookville, Pa.

Italian Queens!

Carniolans mated to Italian drones. Select untested, 75c; 3 for $2.00. Tested, $1.00; 6 for $5.00.
George W. Barnes, 138 N. Pleasant St., Norwalk, Ohio.

"The Best Farm Paper on Earth"
BARNUM'S
MIDLAND : FARMER
Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer
W. M. BARNUM, EDITOR
Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

Agents, Agents!
Anybody Can Do It.

We want good live representatives to take orders for "Peuro or Pearl" medallions; entirely new; sell at sight; big money; exclusive territory given; agents' supplies; novelties up to date. Write at once. . .

Universal Manufacturing Comp'ny
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PAGE-DAVIS COMPANY

Will prepare you, by correspondence, to do expert work. Instructor in each line has made notable success, personally, and has taught hundreds who are now holding high positions. Put a cross by the subject that interests you, cut out coupon and mail it to-day.

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address either office
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150 Nassau St., New York

Please send me a prospectus fully explaining how I can prepare for a position in the line after which I have marked an X.

Advertisement-writing ☐
Scientific Business Correspondence ☐
Short-story Writing ☐
Correct English ☐
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Shorthand ☐

Name ....

Street and No ....

City .... State ....

QUEENS

AND BEES

Golden or Leather Colored Italian, the best that money can buy anywhere.

THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

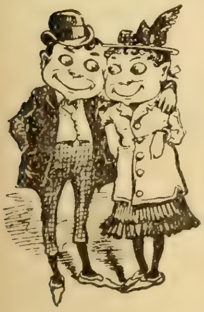
Prices before July 1	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	.....	.....
Straight five-band breeders	6 00	.....	.....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	.....
4 frames brood, 4 frs. foundation	5 00	25 00	.....

Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio.

Doolittle's

Partner selecting a queen. If you want the full particulars send for their circular, giving a description of their fine northern-bred . . .



Italian Queens.

If you want honey-gatherers you need look no further. . We are now ready to send out .˙ .˙

Choice Breeders.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

PROVIDENCE QUEENS
PROVE THEIR QUALITIES

To be unsurpassed. .˙ .˙
Reared by an exclusive method.
.˙ .˙ Circular on request.

LAWRENCE C. MILLER,
P. O. Box 1113G, Providence, R. I.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L E. Mercer. Ventura. Calif.

Queens

California

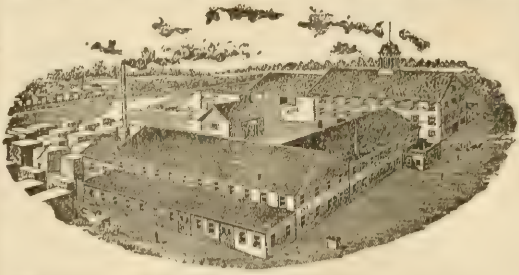
Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. W. T. Crawford, Hineston, La.



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

BEE-SUPPLIES !

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

DISCOUNTS FOR EARLY ORDERS.

DEALERS IN OUR GOODS.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
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Southwestern Bee Co., San Antonio, Tex.

Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, - : - Augusta, Wis.

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BASSWOOD

FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

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Bee-supplies

Lewis Goods at Factory Prices

Root's smokers and extractors, Dadant's comb foundation, Bingham smokers. ☞ We sell hives arranged with the famous **Colorado Cover,** the best cover ever put on a bee-hive. Complete hives cost you no more with this cover than with other covers, but they are better.

Where Do You Live? Let us quote prices on what you want, with freight paid to your station. We ship each year to every State east of the Rocky Mountains. Let us ship to you. ☞ **A Porter Bee-escape Free** with first order if you tell us where you saw this ad. ☞ Eighty-eight-page catalog free. Send at once.

C. M. SCOTT & CO.
1006 E. Washington St.
Indianapolis : Indiana

FREE! A Subscription to Bee Journal One Year with order of $5.00 or over. Cheapest place in the United States to buy your supplies.
One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load
Wholesale and retail. Send for free list.
W. D. SOPER, Rural Route 3, JACKSON, MICH.

York Honey & Bee-supply Co.

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141 and 143 Ontario Street, Chicago, Illinois

Five Short City Blocks North of the C. & N. W. R. R. Passenger Station

HEADQUARTERS FOR

LEWIS GOODS IN CHICAGO

BEST AND MOST DIRECT SHIPPING-POINT IN THE WORLD

H. M. Arnd, Manager.

We have on hand a large stock of

Lewis' Popular Bee-supplies!

Consisting of Hives, Sections, Shipping-cases—everything used by the practical up-to-date bee-keeper. ❦ Catalog and prices on honey on application. ❦ If you want good-goods at factory prices, and prompt shipment, send your orders, or call on us. ❦ BEESWAX WANTED—28 cts. cash, or 30 cts. when taking bee-supplies in exchange—delivered here.

W. O. VICTOR

Price of Queens	1	6	12	25	50
Untested.........	$ 1 00	$ 5 00	$ 9 00	$16 50	$32 50
Select Untested...	1 25	6 00	11 00	20 00	37 50
Tested...........	1 50	8 00	15 00	28 00	50 00
Select Tested	2 00	11 00	20 00	37 50	70 00

Breeders, $3.00, $5.00, and $7.00, according to high points scored. . . 500 nuclei with young clover stock queens for sale. . . Shipment to begin May 20th.

Nuclei	1	3	6	12	25	50
1-frame....	$ 1 65	$ 4 45	$ 8 65	$16 80	$33 50	$65 00
2-frame....	2 40	6 70	12 40	23 80	46 00	90 00
3-frame....	3 15	8 70	16 40	31 80	60 00	115 00
4-frame....	3 75	10 50	20 00	39 00	75 00	165 00

If no queen is wanted, deduct 40 cts. from price of each nucleus. If untested queen is wanted, add 35 cts.; if tested queen is wanted, add 85 cts.

Formerly of **Wharton, Texas,** has moved his entire bee and queen business to **Hondo, Texas,** where he is now a member of a joint stock company.

The queen-rearing department of our company will be under the personal supervision of W. O. Victor. The same strain of bees and methods will be used that he formerly used in Wharton. We will confine ourselves to the **long-tongue clover** strain of three-banded Italian bees, as we consider them the **best all-round bees on earth.**

Special rate by express.
Satisfaction guaranteed.
Terms cash with order.
Yours for business.

The Victor-Knolle Apiary Co., Hondo, Texas

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

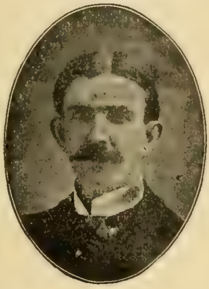
Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.



Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

Hoosier-Italian Queens---By Return Mail.

Untested Queen	$ 75
Select Untested Queen	1 00
Tested Queen	1 00
Select Tested Queen	2 00
Select Breeding Queen	5 00
Best Imported Queen	5 00
Fair Imported Queen	3 00

Randolph, Maine, April 17, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—The queen I bought of you last season came through the winter in fine shape. I see they will work when the weather is cool, and when the hybrids on each side of them will not be out at all.

Yours truly, H. S. WINSLOW.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513-515 Massachusetts Ave., INDIANAPOLIS, IND.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

Swarthmore Queen-rearing Outfits

Prices of Complete Outfits:

Outfit No. 1--Experimental
Postpaid, $1.50
1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2--Amateur
Postpaid, $3.50
2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cup, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional
By Freight or Express, $7.50
2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
10 Comp. mating-boxes, 2 Swarth. nursery-cages
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

These goods and books are for sale by all dealers in bee-keepers' supplies, and furnished at wholesale and retail by The A. I. Root Company.

Prices of Separate Parts:		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
Breeding-queen Hive	1.00	
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100	.75	.09
Flange-cups, waxed, 2c each; per 100	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Mating-boxes, complete, each 20c; 10	1.50	.12
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box lid only	.25	
Trap-box	.50	
T Stands, each	.10	.06
Transfer-cages	.10	.02

Swarthmore Books
"INCREASE" tells now to form new colonies without breaking up working colonies, postpaid .25
"BABY NUCLEI;" how to mate queens with a mere handful of bees .50
"CELL-GETTING;" ready about May 10 .50

Squab Book Free

Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here is something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
320 Howard St., – MELROSE, MASS.

Farmers Need Pay Nothing Down On a Fine Victor Talking Machine.

Write to Lyon & Healy, 17 Adams St., Chicago, for their offer. Pay for records only. Thousands of homes are availing themselves of this great opportunity to secure one of these splendid entertainers. Begin to pay for the Victor next month. :: :: :: ::

WANTED.—Buyers for Mory's patent roach-traps; mail, 30c each. WM. MORY, Covington, Ky.

SPECIAL NOTICE

Special Notices By Our Business Manager

SECOND SERIES OF PRIZE-PHOTO CONTEST.

Many of our subscribers could not take part in our first contest, as the time was so short, and it was the season of the year when good photos could not be obtained. Those who were fortunate enough to have pictures had an advantage. To give all an equal chance we have arranged our second contest to extend over the best time in the year to take pictures. Keep your eyes open for a good view, and when you have found it get a camera and you will have a chance to win one of our liberal prizes. It's a great satisfaction to have a good photo of one's bees, even though a prize is not won.

We offer the following prizes for different kinds of photos: Class A, photo of apiary. Class B, photo of comb honey. Class C, photo of any object of interest to bee-keepers, not included in two first classes.

Rewards:—Each class will be awarded a first, second, and third prize. First prize, winner will be allowed to select goods from our catalog to the amount of $5 00; second prize, same as first, except amount is $3.00; third prize, same as first, except amount is $2.00.

Conditions:—Contest closes Sept. 1, 1905. Contest is open to all ages, and limited to United States and Canada, as the foreign contest is still on. We suggest that photos of honey should show the product of one colony, and be arranged so as to expose the entire face of each section, similar to the photos often shown by Mr. Danzenbaker. If preferred, a select ten sections could be photographed, or any other idea may be used.

Photos should not be marked in any way, but your full name and address should be put on a separate sheet, and enclosed with photo, marked "for prize competition." Do not neglect this. Photos not winning a prize will be paid for according to the value to us, if we can use them. The prizes will be awarded with special reference to clearness of photo and artistic beauty and the instructive and interest-drawing power. No photo returned unless stamp is enclosed for return. Prize-winning photos are to become our property.

Special Notices by A. I. Root.

SWEET CLOVER—WHAT IT IS FOR; IS IT A NOXIOUS WEED, ETC.?

We have just taken from the press a booklet of 32 pages, with the above title. As the introduction of sweet clover is a matter of general interest to all bee-keepers, and as it has been pretty well decided that it is not a noxious weed, we have prepared ourselves to mail this booklet free of charge. If any of your neighbors seem to have gotten the notion that sweet clover is an enemy to the farmer, better give him one of these booklets and tell him to read it very carefully. Just write us a postal card, and that will bring it. Or if you want it mailed to some one else, just tell us where to send it.

CATCHING "RUNAWAY SWARMS."

On page 511, May 1, I promised to tell in next issue about the dollar booklet entitled "The Art of Attracting and Catching Swarms of Bees." At the present writing no such book has been received. Our dollar was returned by the author of the book, with the following brief letter:

Mr. A. I. Root:—When the second edition is complete and published we will send you a copy.

Ficklin, Ill., May 3. Yours, etc. T. W. BRYAN.

I do not know why friend B. did not keep the dollar unless it is because our money is not good. We try not to be uncharitable, but it looks as if he had a little hesitation in submitting his booklet to the editor of a bee journal. If, however, when it comes to hand, and it contains information worth a dollar, we shall be glad to give him a good advertisement free of charge. Permit me to say, however, that you had better be careful about sending money to anybody for things of this kind unless they have the endorsement of the journals treating on that particular industry.

"SANDBAGGED AND SUBSIDIZED."

Friend Root:—I inclose a clipping from the Milwaukee *Sentinel*, which I think is too good to keep. Long may you live to speak for truth, temperance, and righteousness, is the wish of your friend; and should you ever come to this wicked city I should be very much pleased to meet you. R. RODENBERGER.

South Milwaukee, Wis., May 12.

A FORMER MILWAUKEE PREACHER SAYS PAPERS ARE SANDBAGGED.

Berwick, Pa., March 23.—In an address on temperance before 300 Methodist ministers, in attendance at the Central Pennsylvania conference here last night, the Rev. Dr. E. L. Eaton, of Allegheny, formerly of Milwaukee, declared "Lincoln and many other men in public life spoke out strongly in favor of total abstinence and prohibition. Forty-two years have passed away, and there is not one statesman in public life who has not 'lockjaw' on the question.

"President Roosevelt is a popular idol; but, great and strong as he is, he has never said one word against the liquor-traffic. Had he done so he would not have been elected. There is only one power greater than the saloon power, and that sits on the throne of the universe.

"The newspapers and magazines of the country used to advocate our cause, but to-day the American press is silent, apathetic, and hostile, and the majority of religious publications are milk and water on the question. The press of the United States is sandbagged. But the Associated Press is worse; it is not sandbagged, but subsidized. A man gets drunk, goes home and kills his wife. The papers tell the world he did it in a fit of insanity, while the fact is he was full of booze and the devil."

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To promote and protect the interests of its members.
To prevent the adulteration of honey.

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We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight.

The Bee & Honey Company, Beeville, Bee Co., Texas.

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

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Untested, each	$1.00;	½ doz., $5.00;	doz., $9.00
Warranted, each	1.15;	" 6.00;	" 10 50
Tested, each	1.50;	Select tested, each	2.00

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Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

Of the highest standard bred from our superior Golden and Leather Italian stock. Gray Carniolan queens mated to Italian drones. Our colonies with these queens reared last season have from three to four frames of brood now. All queens are large and fine.

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

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Untested, 75c; $8.00 per dozen. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

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becomes greater each year; the following report shows the reason why:

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Nice three-banded Italian queens that are guaranteed to please, or money refunded. Ready to mail about June 10th, in any quantity, at 60 cents each. Free circular.

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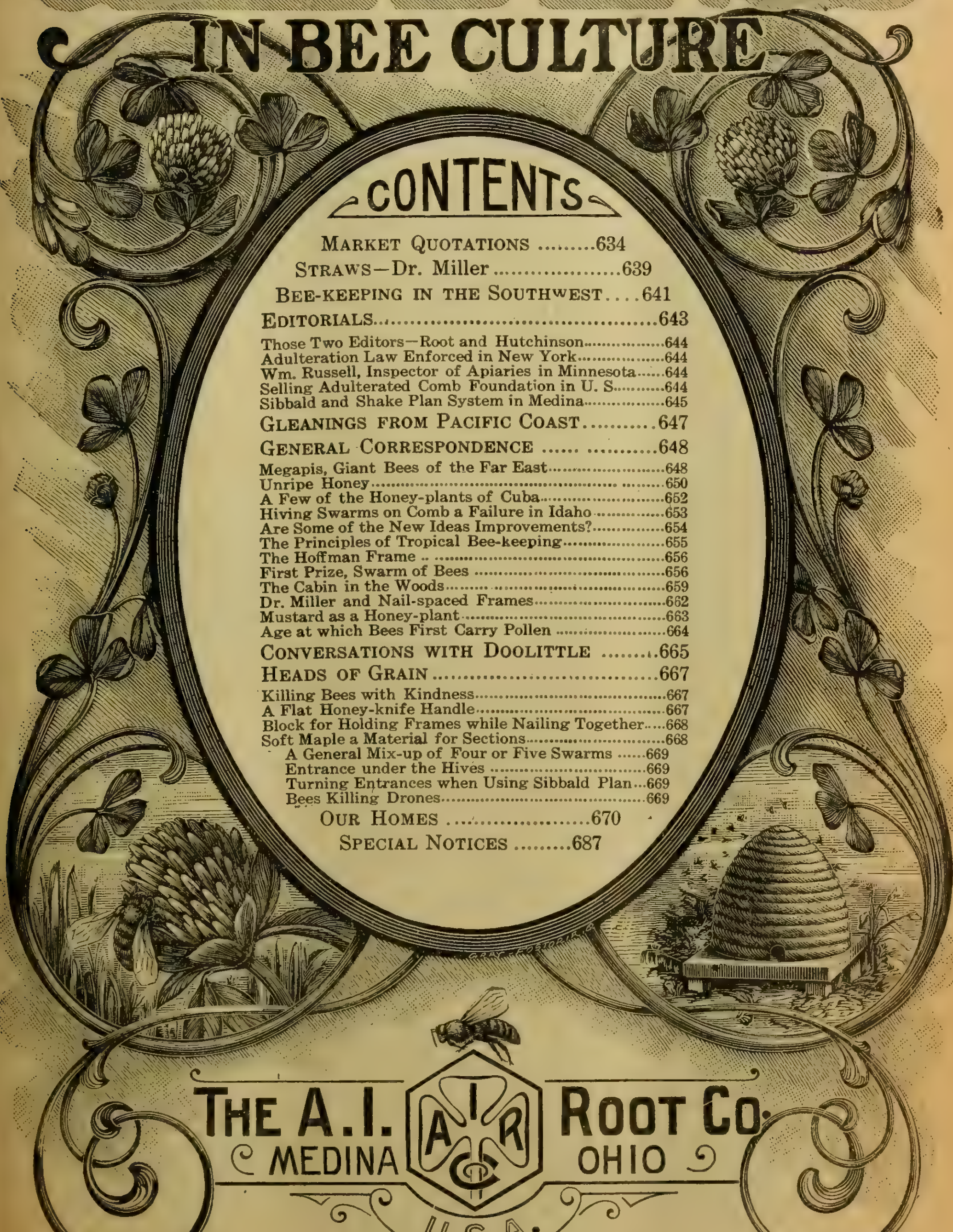

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I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

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Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
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Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Chicago.—The total volume of sales is infinitesimal, hence prices are not considered to be important at this season. Comb brings 12@12½ per lb. for best grades; off lots, 7@10. Extracted, 5@7, according to what it is. Beeswax sells upon arrival at 30.
R. A. Burnett & Co.,
June 7. 199 South Water St., Chicago, Ill.

Philadelphia.—As the season advances there is very little call for comb honey; in fact, no sales, and we make no quotations. Commission men are accepting any offer they can get for what little stock they have on hand. Extracted honey is in some demand. Possibilities of a big crop are holding prospective buyers back. We quote as follows: Fancy white, 7@7½; amber, 6@7; dark, 5½@6. Beeswax, in good demand at 29@30. We are producers of honey, and do not handle on commission.
Wm. A. Selser,
June 8. 10 Vine St., Philadelphia, Pa.

Buffalo.—Our honey market is not quite as good as it was, and still No. 1 to fancy white comb is selling very well considering the time of the year. Lower grades are very slow sale, with fair demand for white extracted. We quote fancy white comb, 12½@13; A No. 1, 12@12½; No. 1, 12@12½; No. 2, 11@12; No. 3, 10@11; No. 1 dark, 9@10; No. 2 dark, 8@9. Extracted, white, 6¾@7; amber, 6@6½; dark, 5½@6. Beeswax, 28@30.
W. C. Townsend,
June 8. Buffalo, N. Y.

Cincinnati.—There is no demand for comb honey on account of the warm weather. Extracted is in usual demand for this season of the year. We quote white clover, 7@8; amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28.
C. H. W. Weber,
June 9. 2146-8 Central Ave., Cincinnati, O.

Kansas City.—Strictly fancy and No. 1 white, $2.25; amber, $1.75@$2.00. Extracted, 4½@6. Beeswax, 28. No new honey in.
C. C. Clemons & Co.,
June 8. Kansas City, Mo.

Toledo.—The market on comb honey this writing remains the same as last, with practically no demand for any grade. Extracted white clover, barrels, 6@6½; cans, 7; amber, in barrels, 5¼; in cans, 6. Beeswax, 26@28.
Griggs Brothers,
June 7. Toledo, Ohio.

Cincinnati.—There is only a fair demand for honey at the present time. We quote amber extracted in barrels at 4¾@6, according to quality; white clover, extracted, 6½@8. The comb-honey market is practically closed for the summer. Beeswax is wanted at 29.
The Fred W. Muth Co.,
June 2. 51 Walnut St., Cincinnati, Ohio.

Boston.—Our honey market continues very dull, with very little movement to be noted. We quote fancy white, 14; No. 1, 12½@13. Extracted, 6@8, according to quality.
Blake, Scott & Lee,
May 23. 31-33 Commercial St., Boston, Mass.

Denver.—Demand for both comb and extracted very light. No. 1 white comb, per case of 24 sections, $2.20@$2.40; No. 2, $1.75@$2.00. Extracted, 6½@7½. Beeswax, 25@26.
Colorado Honey-producers' Ass'n,
May 20. Denver, Colo.

Wanted—Beeswax. We are paying 28c cash or 30 cents per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
The A. I. Root Company, Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St., New York.

Wanted.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. Udo Toepperwein, San Antonio, Texas.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

Wanted.—500 pounds fancy clover comb honey; cash; Michigan preferred. W. D. Soper, Jackson, Mich.

Wanted.—Comb honey in one-pound packages from Georgia and Florida. State quantity and price.
Address Judson Heard, Macon, Georgia.

For Sale.—Basswood honey, 250-lb. bbls., at 6c; 60-lb. cans at 7c. E. R. Pahl & Co., Milwaukee, Wis.

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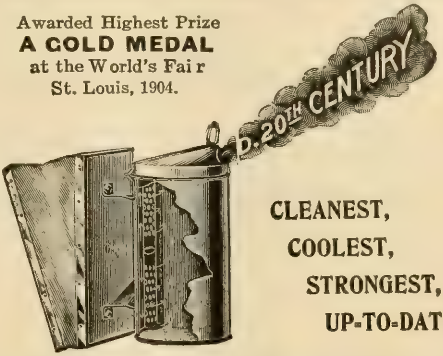

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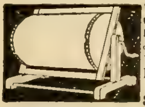

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TIP THE HIVE OVER

so that it will rest upon its back end, use a little smoke along the lower edges of the brood-combs, and it is an easy matter to determine if the bees are building queen-cells and getting ready to swarm. The only difficulty in this performance is that the supers are likely to slide off, but Mr. F. G. Cyrenius, of New York, has invented a simple, cheap clamp that can be put on the hive in five seconds, no matter how many supers there are on it, and it will hold the supers on so securely that the hive might be rolled about the yard without their coming loose. By this arrangement it is an easy matter to examine 100 colonies in an hour. This device is illustrated and described in the Bee-keepers' Review for May.

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TO THE EDITOR OF AMERICAN GARDENING:

In your issue of June 18, on page 399, I notice a good article on the Colorado Beetle or Potato bug. For the benefit of your numerous readers I would advise them to try **Hammond's Slug Shot.** I have used it here this season with excellent results, on Potatoes, Egg Plants, Cucumbers, and Squash, for Potato Bugs and, also, for Striped Beetles, and it is the best remedy I know of, simple and effective. I purchased two of the **Dusters** which he advertised in your paper, and they are very useful articles. The best time to dust the plants is early morning, as the substance adheres much better when the dew is on. A light dusting is sufficient, and woe betide the bugs or the larvæ. Once they get a taste of it they shrivel up right away.

GEORGE STANDEN, Gardener to Col. D. S. Lamont, Millbrook, N. Y., 1904.

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A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co. Medina, Ohio

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Vol. XXXIII. JUNE 15, 1905. No. 12

Stray Straws

By Dr. C. C. Miller.

ISN'T PAGE 601 a beauty? I don't know whether our Eugene or Rob Murray has done the best job.

WHAT AILS YOU, friend Townsend, to use dirty bait sections? page 594. In this locality we prefer clean ones.

"BY AID OF the government-bred bacteria," says Prof. Cook, page 586, alfalfa is now grown in the Eastern States. It may be no harm to say again that such bacteria are not needed if alfalfa is sown on land where sweet clover has grown.

THE NEW DIBBERN queen-trap is on one of my hives, and now it will be just like that colony to refuse to swarm. But any queen ought to feel that her wants were carefully consulted when she sees how easy is made the passage up into it, and also the passage down out of it.

YOU DIDN'T REPORT, Mr. Editor, the size of the larvæ the bees selected for queen-rearing when you made a colony queenless. [Why, I thought we did report that last summer, and in doing so acknowledged that your contention on the point was well taken. What more do you want?—ED.]

I'M AFRAID some may think, upon reading that footnote, page 584, that formalin may be intended as a cure for foul brood, to take the place of the McEvoy treatment. Hardly that; it's only a question as to whether we can save melting up the combs after using the McEvoy treatment.

RIGHT YOU ARE, Stenog, in saying that more attention must be paid to having extracted honey well ripened, page 587, but I doubt the wisdom of fooling with machinery "for thickening green honey" in a vacuum. Machinery will hardly do it as cheaply, and I don't believe machinery can be trained to make as good honey as the bees.

YEARS AGO I used brood-combs in the same super with sections, and the bees used some of the black comb in sealing the sections. If extracting-combs are to be used in the same super with sections, the combs should not be at all dark. [Very likely. Years ago, when the old-fashioned double-tier wide frame was used in the brood-nest, there were many reports to show that a dark or black comb next to such wide frame was quite liable to cause a discolored capping in the sections. There is no reason why the same principle would not apply on the Townsend plan in case of a one-tier wide frame or section-holder next to dark shallow extracting-combs.—ED.]

MY EXPERIENCE is like yours, Mr. Editor. I get more stings on my wrists than on my fingers. But that's not so much the case when I wear tight wristbands, as I generally do in the working season. Doesn't the dark cavern made by the loose wristband invite stings? [Yes, you are exactly right. It is the dark cavern that seems to invite the onslaught of the bees particularly. But the backs of the hands are also sensitive as well as the insides of the palms. Detachable sleeves can be easily made in a short time that will protect these parts as well as the wrists, whether wearing a coat or an open-sleeve shirt. I will send you a pair of fingerless gauntlets that I believe you will like, and continue to use.—ED.]

THAT A QUEEN acquires the scent of the bees is a doctrine that has worked in its way within recent years, isn't it? The tradition of the fathers was just the reverse. A queenless colony protects itself poorly against robbers. Isn't that partly because, having no queen to give them a distinctive odor, they can not distinguish their foes? Workers eagerly hunt over your fingers where the queen has been. How's that unless the queen gives the scent? [I don't agree that a queenless colony "protects itself poorly." At least they do better than that in this locality. If we throw largely out of consideration colony odor, it will be hard for us to understand many of the phenomena that now seem easy of solution.—ED.]

"THEY WOULD CROWD every available cell in the brood-nest, and very often swarm before going into the sections," page 596. I've read that several times, wondering why your bees should act so differently from mine. I never had a colony swarm before working in sections. Did you use any bait? I think my bees begin in a baited section-super as soon as in extracting-combs. I don't mean they'll begin as soon on the foundation, but on the bait. Just one bait-section for each colony is all I use. [Yes, we have had them swarm before going into the sections, even with baits; and we have had them loaf in front of the entrance and not swarm, jamming full every available cell in the brood-nest for several days. The Townsend plan puts up something more than a bait—a real coaxer in the shape of shallow extracting combs. When the bees get *started* to going above they will keep on going there, even when conditions are not so inviting as before—at least that was my personal observation, and it seems to be in line with the Townsend practice.—ED.]

FRIEND WEAVER, you say, p. 596, "if the package contains 3 or 6 pounds they will buy just as quickly" as they would a pound package. Locality again. Thousands of people that would do without it if they had to buy 3 pounds at a time buy frequently if it's offered a pound at a time. The National Biscuit Co. evidently think they increase the amount sold by putting 5-cent packages on the market. [If a customer is allowed his choice without solicitation, he undoubtedly in *any* locality would select the smallest and cheapest package. Well, suppose he did, and liked the honey, and came to buy more, and so on every Saturday night. Suppose our bee-keeping friend or the grocer should say to him, "Say, Jones, why don't you buy 25 or 50 cents' worth like this, and get it for very much less money per pound than in that small package?" I have been told that the sellers of proprietary medicines soon discover that customers find it more economical to buy a large dollar bottle than a 25-cent one that does not begin to contain a fourth the amount in the large package. I think our friend Weaver had in mind the matter of personal solicitation on the part of the seller.—ED.]

"THE GROWING scarcity of suitable section lumber may force all comb-honey producers to adopt some other plan of marketing in the future. If so, we may as well begin to face the problem *now*," page 587. Now look here, Mr. Editor, you may as well face the fact that there isn't going to be any such problem. We used four-piece sections before one-piece sections were ever heard of, and would be still using the four-piece with satisfaction if the one-piece had not come in. Why can't we use the four-piece after the one-piece go out, just as satisfactorily as we did before the one-piece came in? Surely there's no scarcity of four-piece lumber. [You forget, doctor, that lumber for four-piece sections would also be expensive. The scarcity of one would affect the price of another. I know of no lumber that would be available except hard wood; and the expense of cutting lock-cornering at each end of four pieces of wood comprising the sections, or eight lock-cornering joints in all, to make one section, or 8000 lock-corner cuts to make 1000 sections—well, you see it would be a question of labor. But that is not all. It is a big job to box up and prepare for shipment 4000 pieces to make 1000 sections. If you were a manufacturer for a time, and had made both kinds of sections, I think you would conclude that the four-piece kind would not materially relieve the situation. While it is true that we had the four-piece sections before we had the one-piece, the lumber was soft, and cost only about a fourth what it does now.—ED.]

"LET ME SEE," says ye editor, page 583, "if my recollection serves me right, there used to be a chap up in Northern Illinois who argued strenuously for sections holding a full pound because the public expected a section to weigh that much." That chap, Mr. Editor, hasn't changed his views in the least. Neither did he at that time believe the production of a crop of sections weighing an exact pound each was other than a myth. Possibly you may recall that he viewed with some favor the idea of producing sections weighing so much less than a pound that no one could possibly be deceived into believing them full pounds. What he then protested against, what he protests against now, is the dishonesty of selling a light-weight section for a full pound. Not the slightest objection to selling sections by the piece if there's no deception as to weight. But I'm afraid there is deception, even yet. On what *honest* ground can you explain quotations that make a case of sections weighing 11¾ pounds sell for more than a case weighing 12½ pounds, the quality being the same in each case. [There is no difference of opinion between the Illinois man and the editor, and never has been, on the question whether it is right or wrong to palm off a short weight for a full one with intent to defraud. That point does not admit of argument. The weights have been shorter, not to deceive but to get within a *certain price*, say 10 or 15 cents as the case may be; and in such cases sections have been sold by the piece, like oranges. When sold by the pound the price is figured accordingly, whether it was short weight or a full one, like cheese. The Colorado bee-keepers have for years sold their honey at so much a case—not to deceive, but for convenience. Where do you find specific cases of intent to defraud?—ED.]

BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION TEXAS

San Antonio, Texas, is the next meeting-place for the National.

◆

A few breeding-queens should be procured for your yards each year from which to improve your stock of bees.

◆

Rains, downpours, cyclones, floods, and a dozen other things we have had here in Texas, and yet prospects are promising.

◆

There has been a great demand for Southern queens so far this season, which I gather from letters from some of our breeders.

◆

The Texans are at last glad to know that the National will come to San Antonio this fall. It is about time, too, that this decision were made. It will be only several months until the meeting, and preparations for the occasion are well under way.

◆

My first crop of this year's honey was taken May 10 from my home yard at Hunter, Texas, and sold at 7 cts. per pound. It was extracted honey of good quality, gathered from various spring flowers. How does this compare with bee-keeping in the North?

◆

I am indebted to Prof. Frank Benton, in charge of apiculture, Bureau of Entomology, Washington, D. C., for a complimentary copy of a revised edition of Farmers' Bulletin No. 59 which treats on bees and bee-keeping, especially for farmers. All who are interested in bee-keeping should be in possession of a copy. It is free.

◆

The bee-keepers of the Southwest will confer a great favor if they will send me news items on apiculture from all over our part of the country. I shall be glad to receive and answer all letters that are sent me, and I should like to keep posted upon all topics relating to bee-keeping. Crop reports especially will be appreciated.

◆

Cleaning the inside of the hives and the frames of burr-combs and propolis, and replacing crooked and drone combs with good worker combs, or foundation, in the spring, when there is very little honey and brood in the way, has been found very profitable. Besides, it makes future manipulations very much easier and more pleasant, while the better combs result in less worry, fewer drones, and more workers. This, I feel sure, is worth thinking about.

That "brick" of honey has partly melted down now; but the center and the upper portion of the cake are still firm. The extreme moisture of our season this year may have had some effect upon the honey getting soft, for a thin watery fluid has penetrated through the carton, which would show that moisture was the cause. The brick is still being kept for further observations.

◆

"Spring cleaning" in bee-keeping is very much like the spring cleaning with the good housekeeper, and it is one of the things very much neglected by too many bee-keepers. It should include the cleaning-up of every thing in and about the apiaries, and putting all in apple-pie order for future work. This will make the work more pleasant, and, at the same time, more profitable.

◆

The spring honey crop has been very light this year. In the greater part of the country there has been practically no crop so far, and there has been no honey on the market for several months. Even the larger dealers have had none to supply demands. I have been trying to get several hundred pounds for our boys here at college, but I could not obtain it. This is mainly due to the excessive and continued heavy rains which still prevail frequently to this date.

◆

Very few bee-keepers really know the value of a Manum swarm-catcher for hiving swarms until they have tried one. I say this from my own experience. Before, I used to think it was just so much saved if the swarm-catcher were left out of the order for equipment, but not so now. In fact, I do not know of any thing better, especially if swarms settle in tall trees. To let the swarm cluster on the suspended basket while the hive is prepared to which the swarm is then carried, makes the hiving much easier and less disagreeable than the old ways.

◆

The control of swarming has been a problem this season here in the College Apiary. The great abundance of spring honey-yielding bloom produced overpopulous colonies before they could be controlled. Once the swarming fever was on, and the most favorable conditions existing, nothing would keep them from swarming. Colonies that were divided artificially would swarm, even if they were on only half the number of combs in a large hive. With such existing conditions, all our pet-hobby non-swarming ideas are knocked far and wide, and we begin to wonder how we *might* control something for which we had a "sure thing" before.

◆

SHORT APICULTURAL TERMS.

What shall we have next? A shorter term, "expressive, which would never lead to any confusion, and I would suggest that our correspondents adopt the term"—editorial, p. 471. The term referred to is "one brood" to be used instead of one frame of brood; but I am just a bit afraid that there might be some confusion. Suppose a swarm is given "one brood" or "a brood," how many combs of brood will "a brood" contain? Really the term "one brood" or "a brood" would apply to the whole brood of a colony, would it not? If "two broods" are given to a swarm, then two colonies must be deprived of their brood to supply the swarm. And, again, in some apiaries in Southwest Texas, "bottom-board" and "floor" are two entirely different things. Bee-keepers with large apiaries have "floors" under their hives, yet no "bottom-boards." Their hives rest on rims three inches high, placed on the hard soil, and filled nearly level with dry earth. The floor of the hive is the bare earth. There is a *floor* but no *bottom-board.*

❧

WATER FOR BEES.

An ideal watering-place for bees we have made here at the College apiary. A line of small water-pipe was laid to a shady and sheltered spot on the edge of the oak grove near the apiary. A small faucet is placed eight inches above the ground. Under this is placed a shallow trough made simply of a piece of lumber 2×12 inches by 2 feet long, with several longitudinal grooves ½ in. deep and 1½ in. wide, running the length of the board, but two inches shorter at each end. These grooves are connected by several transverse grooves to allow water to run into all of them. A piece of gunny sacking is tacked over the whole surface close down in the grooves, and the faucet is turned on so it will drip just enough to keep the cloth wet and not allow it to run over. The bees take readily to such a watering-place, and there is no danger of bees drowning. Several arrangements have been tried, but none as successfully as this one. The trough is placed close to the ground. The bees seem to prefer it, and the winds do not disturb them as they did with the troughs placed several feet above ground.

❧

A FLOODED APIARY.

One of our experimental apiaries, owned by Prof. R. F. Smith and myself, is located on the Brazos River, fifteen miles from College Station, where the country is low for miles around. This "bottom" is a good one for honey-production, as the extensive woods are filled with honey-yielding flora, besides the great cotton plantations that afford a good crop from that source. Alfalfa is also grown extensively. This whole area, however, is subject to floods whenever Texas is blessed with abundant rains and downpours, and at such times crops and life are endangered. Such a flood spread over this country in the first week of May, and people, stock, cattle, etc., were removed to places of safety where the land was higher. The bees, however, were the last to receive proper attention, for, after several attempts by inexperienced persons, the saving of them was given up in disgust on account of their stinging. The method of procedure as dictated over the phone was to place them on scaffolds of some kind, out of the water's reach, smoking the bees while doing this. The scaffolding was soon made out of an old heavy plantation wagon, and several other structures that were handy, but the work of placing the bees thereon was not an easy task. It was even given up by some of the faithful plantation darkies who had often helped me at the work with the bees. The bees seemed to have become infuriated at the approach of the flood. Perhaps the weather or the atmosphere may have had an effect on them. A Mr. Simpson later put the bees up at 25 cents per colony, finishing the work late at night when the water had already entered some of the hives. A trip to that apiary a few days later revealed a pitiful sight with the yard and the former stands all washed up, and the colonies all piled in one great heap several feet off the ground, with the entrances turned in all directions. A heavy honey-flow was on, and the combs dripped with new honey when handled. Some of the supers were nearly full and the combs sealed over, therefore disgust gave way to a turn of enthusiasm well known to the bee-keeper, and the yard was again restored to order after several days of hard labor. Since the first flood it has repeated itself twice, each subsequent flood coming a week after the preceding one; but these did not reach the point of the first.

Now for the questions. Is it profitable to keep bees in such localities, and how can it best be done? It is really the only country here where honey-yielding flora is productive, as the surrounding higher upland country is poor for bee-keeping. Profitable honey crops can be obtained in these "bottoms." The only question is, how to overcome the danger from the floods. These happen every few years. The surrounding high locations are out of reach of this area, so that the apiaries can not be located there. To place the colonies permanently on high scaffolds has its objections. To work on them is quite unhandy, and the bees do not do as well as when the hives are close to the ground. Therefore the building of suitable scaffolds upon which the colonies can be placed at the approach of a flood seems to be the most satisfactory. Such can be easily made out of stout posts and two pieces of scantling placed far enough apart to set the hives across. These scaffolds may not be needed for years, and then, again, several floods may come in a season as in this one. The only trouble that might arise is to find a suitable person to put the colonies on the scaffold, for it will be well to remember that none but negroes are kept as laborers on these "bottom plantations;" and the overseer, who is a white man, has too many other things to look after at such critical times, for every thing is done on a large scale on these plantations of several thousands of acres.

Editorial
By E. R. Root.

WE are glad to note that the *Rural Bee-keeper* is showing a healthy progress. Its editor is an up-to-date bee-keeper, and appears to be able to pick out as well as write good bee-matter himself.

THE HOFFMAN FRAME A STEP BACKWARD.

A VERY readable article on the subject of Hoffman frames appears in the *Rural Bee-keeper* for May, written by our old friend L. Stachelhausen, of Texas, well known to our readers. He believes its adoption was a mistake, and a step backward, and his opinion is well worthy of careful consideration.

Strange how differently people look at this frame. Mr. Harry Lathrop, in this issue, is only one of a thousand extensive bee-keepers who use and prefer this frame to any other; and yet it is, perhaps, true that there are a thousand others who would not have it. It is the old question again, that not every one can be induced to use the same device. The users of the old-style closed-end Quinby frame could not be persuaded to adopt the old-style Langstroth unspaced frame; and I presume our friend Stachelhausen would feel that he would have to get out of the bee business if some power were to compel him to use any form of frame with closed or half-closed uprights.

We sell four styles of frames, and are willing to supply whatever is called for.

BABY NUCLEI; SOME IMPORTANT REQUISITES IN ORDER TO MAKE THEM WORK IN THE HANDS OF A BEGINNER.

WE have been trying these baby nuclei with and without brood. Our experience is that, in the *forming* of them at least, there should be brood, and, if possible, a queen of some sort—a virgin will do just as well. Without both, the bees are quite liable to desert. As a general thing the bees will remain if they be given a virgin, even if they do not have brood providing she is accepted. But there ought to be brood to supply young hatching bees to replace the few bees that may desert. When the virgin gets to laying, her brood will be converted into hatching bees again. Another factor that contributes toward the success of these baby nuclei is to distribute them in shady places remote from the entrances of strong colonies. In some instrances we found that a big stock two or three feet beneath, with flying bees going in at a fast rate, will attract the bees out of the newly formed baby nucleus above. You see they hardly know where their home is; and, when once in the air, they will join the crowd or the stream of flying bees going into the big hive.

There are many things an expert can do with a baby nucleus; but a beginner, at least, had better follow the suggestions given above.

THE SHAKE-SWARM PLAN AT VERNON BURT'S YARD.

AS I looked over Mr. Burt's bees the last few days, and saw how they were piling in at the entrances, I said, "You will soon have swarms at the rate they are storing honey."

"I have not had any yet," he answered.

"But you will have," I said, "and then what are you going to do?"

"I do not think I shall have very many swarms, because I practice the shake-swarm plan."

"Now, Mr. Burt, please tell me exactly how *you* do it, for every one seems to have some modification of this method."

"I carefully watch for those colonies," he said, "that are *preparing* to swarm. I put an empty Danzenbaker hive with frames of foundation on the old stand, removing the old hive to one side, and take out a frame of brood and the queen, and put them in the new hive. Then I shake a large portion of the bees from the old hive in front of the entrance of the new one, give it the super from the old one, and then move the old one to a new location, which will still further give up of its flying bees to the shaken swarm now on the old stand. The bees will go right on storing in the supers just the same, and there will be no further trouble for that season."

This is the same plan Mr. Burt pursued last year and the year before that with such success.

"But, say, Burt, why don't you try the Sibbald plan?"

"Too much work, and too slow," he replied. "Then I know how flying bees will find their old entrances, and this would, to a great extent, defeat the object of the manipulation. But why should I change," he continued, "when the shake plan is so satisfactory, and so little work?"

There is scarcely a honey-producer in the United States who, with so little labor, produces finer or more comb honey than our friend Vernon Burt, of Mallet Creek, O. He is never in a hurry, seems to take things very easy, winters his bees outdoors in Dazenbaker hives and winter cases, and then uses those same winter cases for honey-production.

A KINK IN COMB-HONEY PRODUCTION.

But I came very near forgetting one important secret to Mr. Burt's success, and that is, that he puts several thicknesses of burlap on top of the super for comb honey. Over the whole he slips down a large wintering-case. Said he, "I have observed it over and over again, that a comb-honey super without these several thicknesses of cloth and winter-case over it will not be filled as rapidly as one that is protected. Why," said he, "without protection the bees will desert the super entirely on cool nights, and all work will stop for the time being."

THOSE TWO EDITORS—SEE PAGE 662.

THE enlarged view of the two bee-journal editors, as seen elsewhere, is a very natural pose of both personages, especially of A. I. R. during chilly or cool weather. It is then his wont to wear a fur cap as if he were cold. Indeed, in the house or in the office he will, in the spring or winter, have his coat collar turned up just the same, and very often his fur cap on. We laugh at him a little, telling him it is a habit; but he insists that they feel comfortable, and that they ward off a cold. It is possibly true he is as much inclined to catch cold in the house as outdoors, especially if sitting down. But the "cabin in the woods," remote from business and letters, has been almost a panacea for those chills, necessitating so much bundling in summer in and out of doors. He has since shed his fur cap and overcoat. As to the other editor shown in the picture, I received a letter that said he was taking a much-needed "playspell;" that he had purchased nine colonies, and was keeping bees again; that somehow letter-writing was irksome, and outdoors inviting.

That both may be spared many more years and "playspells," I am sure is the wish of many of our readers.

THE ADULTERATION LAW ENFORCED IN NEW YORK.

A FRIEND of mine who lived for several years in Medina transferred his business to Plattsburg, N. Y. As he and his wife know what good honey is, they concluded to see what they could find in the markets of that place. On inquiry at the grocery they were met by the response, "Oh, yes! we have honey for sale," and a package, or, rather, a tumbler containing glucose and honey and a piece of comb was handed out. Near the top of the jar, in very large black letters, is the following:

75 per cent Corn Syrup. White-Clover Honey Compound. 25 per cent Honey.

My friend wrote me, sending the label, complaining of the vileness of the stuff, and said that the same was not like the real honey he used to buy here in Medina.

But the very conspicuousness of the wording is sufficient to show just what the customer is buying, and he therefore has a right to ask for the pure article if he can obtain it. Certainly there is plenty of it in the country.

I assume that this wording is strictly in accordance with the law of New York, which provides that all mixtures and adulteration shall show in plain letters the exact proportion of each ingredient.

It can not be for long that such goods can be sold in the State of New York. It will be and must be that 100 per cent pure honey, even at a considerable advance in price, will run the other article out entirely.

Honey-producers do not object to adulteration or mixing, providing the per cent of said adulteration or mixing is properly placed in conspicuous letters on the bottles or packages. It is the misbranding, or masquerading under false names and colors, that provokes the wrath of the bee-keeper.

Do not forget that three-fourths of the States have pure-food laws; and we hope the day is not far off when the other fourth will fall in line.

I see in a few stores, even in Ohio, occasionally, packages of honey compounds, each package labeled a certain per cent of glucose and a certain per cent of honey. But I note with much pleasure that these packages are getting to be soiled, dirty, and fly-specked; and the grocer is beginning to learn that such stuff will not sell unless it is labeled pure honey. But misbranding in Ohio has come to be a *crime;* and under our present law, which is none too strict, the evil can not grow to any great extent; and I apprehend that the new-fangled name "Karo" will soon be recognized for what it is — glucose, or corn syrup, which under those names won't sell.

WILL'AM RUSSELL INSPECTOR OF APIARIES IN MINNESOTA.

THE Minnesota Bee-keepers' Association, headquarters at Minneapolis, have been putting forth strenuous efforts to get a foul-brood bill through their legislature, patterned something after the one in force in Wisconsin. Several times they seemed to be on the eve of success, and at one time went even so far as to announce that the law had been passed; but this, it seems, was a little premature; and now we are compelled to state that it just failed of passage. But the efforts put forth by the Association were not without good results. It appears that Mr. William Russell, of 4810 Thirty-eighth Ave., South Minneapolis, has been appointed inspector of apiaries, and his commission takes effect August 1, and continues for two years. While not clothed with authority to destroy infected colonies, as he would have been had the foul-brood law passed, he doubtless will be able to do a great deal of good.

I am not informed whether some law did pass in amended form or whether there was some separate provision under an existing law by which the inspector could be given a certain amount of jurisdiction in stamping out foul brood.

The way has been paved, at all events, probably, to secure a satisfactory foul-brood law at the next session of the legislature. Mr. Russel is popular and diplomatic, as well as an experienced bee-keeper. He is such a genial old Scotchman that he can get what he wants without force, so that the Minnesota bee-keepers, under existing circumstances, are peculiarly fortunate in their man.

WHY ADULTERATED COMB FOUNDATION COULD NOT BE SOLD IN THE UNITED STATES.

REFERRING to our editorial of some time ago, stating that there was no adulterated comb foundation sold in this country because the bee-keepers would almost instantly detect the fraud, if there were any such, Mr. E. E. Hasty, in the *American Bee Journal*, in view of the fact that ceresin foundation is sold in Europe, suggests that the reason why paraffine and ceresin foundation can be sold across the water and not in America is due to the *difference* in climate. He says that, with our extremes of temperature, impure foundation would be sure to melt down; while in cool climates without our extremes the breakdown is only occasional — not frequent enough to stop the use of the article.

Some years ago A. I. Root tested ceresin and paraffine foundation, and in every case the results were but a little short of the disastrous. The first hot day resulted in all the combs built from that article melting down in one shapeless mass, destroying brood, drowning bees, and the honey escaping from the entrance. Other experiments were tried by others at about the same time, with precisely the same results, and these seem to have been enough to satisfy American bee-keepers for all time that the *only* article that can enter into foundation at all is *pure* beeswax, the *purest of the pure.*

THE SIBBALD AND SHAKE PLAN OF SWARM CONTROL TESTED AT MEDINA.

I HAVE been testing both the brush and shake-swarm methods as well as the Sibbald plan of keeping down swarming. I find this to be true: That the returning-bee scheme is a little slow, while the shake plan gets immediate results. Still I can see conditions under which the Sibbald would be perfectly satisfactory, and save the bother and nuisance of stirring up a whole colony of bees, and getting them in the grass and up one's trowsers legs, resulting in more or less stings and inconvenience. In the generality of cases I have found it more convenient to use a combination of both methods.

I tried the Sibbald plan without a frame of brood, in some cases using only foundation, but in most cases the bees would find the old entrance, even when I carried it away several feet. Mr. Sibbald makes it emphatic that the new hive on the old stand must have one frame of brood and the queen, and I believe he is right. But even then I noticed the bees were loath to go into the new hive, though it was exactly in the old location. The changed condition of the brood-nest seemed to indicate to the incoming bees that they had made a mistake, and they would hang around on the outside until they found the old entrance, two or three feet to one side.

In the case of dark hybrids I had no end of trouble, for, be it understood, we had one yard made up of bees which we had bought from several different farmers. The black strains would find their entrance, in spite of me. Indeed, it is a well-known fact that black bees will find their hive much more readily than the Italians, and this one fact will make this race and their crosses difficult to handle on the Sibbald plan. My present impression is that the average bee-keeper will succeed better on the brush-swarming plan pure and simple, then carry the old hive to an entirely different portion of the apiary; but even then it is essential to put the queen with the shaken or brushed bees; for in some cases I found that, without the queen, especially if no brood were given, the bees would desert, going into the other hives here and there.

I got into one mess by shaking about a dozen colonies all near together. There was a general mix-up. Some of the hives secured most of the bees, while others were entirely deserted; but in every case where I gave a queen with a frame of brood just long enough for the bees to get used to the new conditions at the old stand they stayed nicely and went to work.

THE HONEY-CROP PROSPECTS FOR 1905.

THERE has been an unusual amount of rainy and chilly weather everywhere. All through the Northern States in the clover and basswood belt the season has been very backward. But the weather has apparently changed for the better just in the nick of time. There is an unusual amount of red, white, and alsike clover this season. In our locality I never saw such heavy mattings of it. The fields are fairly white. The bees that have been on the verge of starvation are now just beginning to bring in honey. But the nights have been a little too cool to insure a good secretion ready for the bees in the morning. As the atmosphere warms up the bees begin to get in their work.

Desiring to get the very latest information from two or three of the great honey-producing centers of the United States, I wrote to the managers of two honey associations and one representative bee-keeper, requesting them to wire us on the 12th regarding the honey-crop conditions up to that date, and the prospects. The following telegram from Mr. H. J. Mercer, Manager of the California Honey-producers' Association, of Southern California, speaks for itself:

> Sixty per cent of bees died; continuous cold cloudy weather has greatly reduced crop. I estimate total crop 100 cars, mostly extracted. H. J. MERCER,
> June 13. Mgr. Cal. Honey-producers' Ass'n.

As Southern California has a capacity of 500 carloads or more in a good year, the 100 cars estimated will probably be somewhere about a fourth of a crop. Northern California will probably produce its usual amount of honey. Taking it all in all, California may be able to produce 200 carloads. This amount will not be enough to affect materially the prices of Eastern honey, because not a large portion of it probably will find its way to the Eastern markets.

Mr. Udo Toepperwein, who is in touch with nearly every portion of Texas by reason of his business connections with the bee-keepers' of that State, wires us as follows:

> Too much rain this spring. Horsemint crop only fair. Mesquites budding. Fair crop expected from mesquite flow soon. UDO TOEPPERWEIN.
> San Antonio, Texas.

If this indicates any thing, it shows that the season has been backward, but it does not signify that a large crop may not yet be obtained, although in all probability the aggregate amount will be less than formerly, but not enough so the surplus of it will seek the Northern markets, probably.

I have been expecting a wire from Mr. Frank Rauchfuss, of the Colorado Honey-producers' Association, but up to date, June 14, have not heard from him. It is perhaps too early yet to give any kind of a guess of what the alfalfa regions will probably afford in the way of honey.

The next ten or twenty days will tell the tale of whether clover and basswood will do any thing this season. In the mean time we request our subscribers everywhere to send us postal cards containing not more than twenty or thirty words, telling of the crop conditions. Now, please *don't* write long letters, nor mix these reports up with something else.

Later.—Honey from clover is coming in strong, and the conditions for a good honey-flow from this source were never better.

THE DIFFERENCE IN THE HONEY-GATHERING QUALITIES OF DIFFERENT BEES.

I WENT down to see neighbor Vernon Burt with his 200 and more colonies all in one location. Nearly every one of them is strong, and in prime condition to go into supers. As stated elsewhere, the weather has been very unfavorable until the last two or three days; but now the bees are piling in honey. I arrived at the yard about five o'clock, having come from one of our outyards, and was gratified to see how his bees were piling into the entrances—perfect streams of them—faster than one could possibly count.

Mr. Burt let me take a look into several of his colonies, one of which started from the foundation, in sections with one bait. They were then preparing to cap over 32 one-pound Danzenbaker sections—*all this within three days!* There were several others that were doing as well, and a lot of others that were falling far short of that performance. Of course, Mr. Burt will use the first mentioned as breeders. In fact, if I understood him correctly he has already been doing so.

Thirty-two one-pound sections in three days, from clover alone! That practically means ten pounds a day. The country has all been soaked with heavy rains. The clover has for weeks back been storing its pent-up sweetness ready to give it forth almost as freely as basswood.

THE *American Bee-keeper* has lately added to its editorial staff, in the position of associate editor, Mr. Arthur C. Miller. That journal was already strong editorially; but its late acquisition will make it still stronger, as Mr. Miller is an enthusiast on bees, an old experienced bee-keeper, and a careful observer.

A NEW FOUL-BROOD LAW; LEGISLATION IN GENERAL.

A SHORT time ago I asked for information in regard to any State or Territory that had recently secured foul-brood laws. New Mexico has lately come into the list. The following is the full text of the law:

NEW MEXICO FOUL-BROOD LAW.

HOUSE BILL NO. 99.

Introduced by Hon. Granville Pendleton, Feb. 20, 1905; read first and second time by title, ordered translated and printed, and referred to Committee on Internal Improvements.

AN ACT entitled an act relating to foul brood and other contagious diseases among bees.

SEC. 1.—*Be it resolved by the Legislative Assembly of the Territory of New Mexico,* that hereafter all bee-keepers, owners, and possessors of bees, apiaries, bee-hives, and apparatus pertaining to bees, bee-keepers, apiaries, and bee-hives shall keep the same properly protected and disinfected, and free from all foul brood or other contagious diseases, and shall be required to keep all bees, bee-hives, bee-houses, apiaries, comb, honey, and apparatus free from all foul brood or other contagious diseases.

SEC. 2.—That any person or persons having in their possession or under their control any bees, bee-hives, bee-houses, combs, or apparatus pertaining to bees or apiaries, and who shall allow the same to become infected or diseased with any foul brood or contagious diseases, and who shall willfully and knowingly permit them to remain in such condition shall be deemed guilty of misdemeanor, and upon trial and conviction before any justice of the peace may be fined in any sum not less than ten dollars or more than fifty dollars, or by imprisonment in the county jail not more than 30 days or by both such fine and imprisonment.

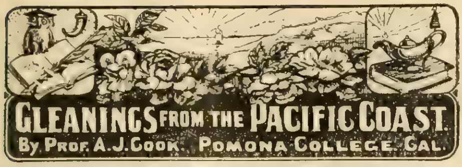
SEC. 3.—That any person competent to testify as a witness may, upon information and belief, make complaint before any justice of the peace in any county in this Territory in which such foul brood or contagious disease among bees is found to exist; and, upon such written complaint being made in writing, and duly sworn to as required by law, the justice before whom such complaint is made shall issue a warrant for the arrest of the offender and shall fully inquire, examine into, and try said cause as now provided for the trial of misdemeanors before a justice of the peace.

SEC. 4.—That upon the trial of said cause that any bees, bee-hives, combs, honey, or apparatus connected with said apiary or bee-keeper, that may be found by said justice of the peace before whom such trial is had, to be diseased or infected with foul brood or any other contagious diseases, shall by such justice of the peace be declared to be a nuisance, and shall be condemned as such, and an order or writ issued for the destruction of such nuisance; and upon the issuing of such order and such writ directed to any constable or sheriff of such county such constable or such sheriff to whom such order or writ is directed and delivered, shall forthwith execute the same by burning, destroying, and putting out of existence all such bees, bee-hives, bee-houses, comb, honey, or apparatus so declared to be and condemned as a nuisance.

SEC. 5.—Justices of the peace in their respective counties shall have jurisdiction in all causes arising under the provisions of this act, and their costs in cases under this act shall be taxed up and assessed as in other cases of misdemeanor before justices of the peace.

SEC. 6.—All acts and parts of acts in conflict herewith are hereby repealed, and this act shall be in force and effect from and after its passage.

This makes in all, so far as I have heard, 13 States and Territories, including Ontario, that now have foul-brood laws. We came very near having two more. I refer to the law that was passed in Missouri, but which was vetoed by the governor, and the measure that came very near passing in Minnesota. But as the latter State has a foul-brood inspector we might also include Minnesota, making 14 in all. Let the good work go on.



GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

STOMACH-MOUTH OF BEES.

I think there is no other animal in the world that has such a marvelous variety of functions as has the honey-bee. This complex physiology implies an equally marvelous anatomy. Once to think what the bee can do! It can gather nectar in three ways, and digest it. It can gather in the pollen and other forms of proteid food, and convert them into assimilable aliment. It can separate the pollen from the honey in its honey-stomach. It can bear the wax scales from venter to mouth, knead them, and then fashion them into the marvelous comb. It can prepare food, and administer it to queen and larvæ. It can gather the propolis. We need not wonder, then, that the anatomy of the bee is something surprising. The wondrous tongue and other complex mouth-organs; the antennæ, which answer as delicate sense-organs; the great compound eyes and much smaller simple eyes; the colossal glands, which are surpassed only by those of the well-known silk caterpillar; the wax-glands; the varied compound hairs; the antennæ-cleaners on the front legs; the pollen-brushes on the middle legs, and the pollen-baskets and wax-jaws of the hind legs—these together, with the stomach-mouth, give us an anatomy that challenges comparison in all the realm of animal life. To-day I wish to speak only of the stomach-mouth.

This is a small spherical organ situated in the hinder end of the honey-stomach. Picture, if you please, the honey-stomach as a small horizontal bag, which, as we pull the head from the thorax or the thorax from the abdomen of the bee, often comes out so that it is plainly visible. In this case it is usually full of nectar. Can we not picture a minute apple-shaped body, at the very hinder end of this little bag? Imagine the apple cut into quarters, and imagine these quarters slightly reduced, and the skin not cut, except a small opening at the stem end of the apple, which is forward, and a second small opening at the blossom end, which, of course, is at the extreme hinder end of this little sac. Picture again numerous hairs on the inside of these quarters, all pointing back. It is easy to demonstrate all this if we kill a bee and at once separate the thorax and abdomen, pulling out the honey-stomach. If we put this in a warm saline solution, say of common salt, and open it under a good dissecting microscope, we shall see the four quarters of the stomach-mouth constantly open and shut, or pull apart and then close together, thus enlarging and reducing the space between the four sections. It is obvious what the effect of these motions will be. As the quarters recede, honey from the honey-stomach will push in; as they close, they close first back, and the honey is again thrown back into the honey-stomach. The pollen, however, is caught by the hairs, and can not return with the honey. Thus, all the time that the bee is gathering, this little stomach-mouth is actively engaged in straining out the pollen from the nectar. We understand, then, why the nectar goes into the cells of the comb so free of pollen. It may not, usually will not, be entirely eliminated, though we may expect very little and will rarely be disappointed.

THOMAS W. COWAN.

We are glad to know that Mr. Cowan has again returned to our country and State. Those of us who know Mr. Cowan can not but appreciate his great ability and equal courtesy. It is good to know a man who is so thoroughly and invariably the gentleman. As editor of the *British Bee Journal* he has great influence, and has done very much for our art. Like all great men, Mr. Cowan is an example of modesty. He never pushes himself to the front. His book, "The Honey-bee," is one of the very best ever written by any one. Though small, it is yet wonderfully complete, as it is an example of conciseness. It is a model of accuracy, so that no one need question any statements of facts taken from this work. Mr. Cowan has also inventive genius, as indexed in his automatic extractor, which, so far as I know, is not excelled by any similar machine in the market. It only remains to be said that Mrs. Cowan is as delightful as her husband. To know such people is to be enriched, and we may all rejoice that Mr. Cowan is with us again.

THE WHITE SAGE.

This incomparable honey-plant, *Ramona polystacyhia,* is responding to the splendid rains of the present season. In all the eleven years of my sojourn at Claremont I have never seen such a wide and vigorous growth of this plant. This is not strange; for, as we all know, all plants respond quickly to abundant moisture. The present season has been one of the finest, in the way of rain, that California has experienced for long years. We have had well nigh four inches of rain in the last week, and the rainfall of the season is now double the average. This not only touches the bee-keeping industry with energizing stimulus, but it also helps powerfully our entire agriculture. California is bound to have an exceptionally prosperous year. The white sages are already many feet high, and the light green of their foliage, and the similarly colored stem, is a pleasing mark on the landscape. In the past week I have ridden for miles through avenues formed by these beautiful shrubs. The plants are already in bud, and the long racemes will soon throw out their wealth of bloom, which will not only attract the bees, but will rejoice the bee-keeper. Like most of our native plants, this white sage has a long tap-root, and so it reaches far down to drink in moisture and other food elements which serve to push its vigor and growth. It blossoms centripetally—that is, from below upward, and is a long time in bloom. Often for five or six weeks the blossoms will be throwing out their bid for bee attention. This fact of long-blooming period is what makes this flower so famous among bee-plants, and what gives to California its pre-eminence as a honey-producing section. I long ago volunteered to be ever ready to act as a "honey-tester." I think I know good honey. I have enjoyed that from basswood, from linden, tulip, mignonette, fruit-bloom, including orange and alfalfa; yet in all my experience I never had any honey that, for flavor and body, surpassed that from the white sage. The sage, then, may be regarded as pre-eminently superior. It gives an exceptionally long season and the best honey. Often, in California, apiaries of hundreds of colonies have secured from two hundred to five hundred pounds per colony. Of course, such extreme records are rare, but they come with all our best seasons. The white sage is largely responsible for these exceptional harvests.

In closing I will say that the black sage is a close second to the white, while some apiarists claim that it is fully equal. It also gives a very superior article and a very long harvest. Its blossoms are in heads rather than racemes, and the shrub is by no means as attractive as the white sage.

HONEY-DEW.

Dr. Miller's suggestion regarding honey-dew for bees, like all his words, are worth consideration. I presume it would be no advantage to most of us to give us food already wholly digested. Our stomachs are better to do the work. Yet if the stomach is weak or overworked, I think the doctor would speak from his learning and urge food easy to digest, or, better, already digested. We know the bee is always hard-worked in the honey season. We know that, at this season, the bee is short-lived. I did not speak *ex cathedra*, but stated that possibly the bee might be the gainer in gathering honey-dew which was already digested and required no effort on the part of the bee. I still think this is more than probable. I have always felt sympathy for any movement that would lessen the labor of the hard-worked. I have always felt happy when I saw bees gathering freely from aphid secretion. I knew that the honey would be first-class, and I felt that there was a little let-up for the hard-worked bees.

In my article for Gleanings, May 1, the word *Gilia* is made to read *Gilio*. May be the gilias would be as beautiful, and as full of nectar, with a new name; but, as with the rose, we prefer the old name.

GENERAL
CORRESPONDENCE.

MEGAPIS, THE GIANT BEES OF THE FAR EAST.

Our Government After Them.

BY FRANK BENTON.

In Charge of Apiculture, United States Department of Agriculture.

A quarter of a century! How time flies! On the 21st of January last, just twenty-five years had rolled past since the first journey to the Orient after Eastern races of bees was undertaken. As the huge Atlantic liner Italy swung out into the broad Hudson on that pleasant winter noon, the good wishes of many of the bee-keepers of Canada and the United States went with a certain little group of three that stood on the main deck, interested observers of the excitement around them—the quick orders of officers, the sound of slipping cables, the hurried footsteps and heaving songs of the agile sailors as they tugged at the great ropes that had just been cast off, the hurried good-byes, and the cheers of crowds on the wharf. The man of large form and good-natured face was none other than our friend D. A. Jones, of Canada. Near him was a "blushing bride" claimed by Frank Benton, of Michigan, who stood opposite the two. "Th-th-there she goes, Benton!" shouted Mr. Jones, his well-known tendency to stutter just a bit when excited getting the better of him. Fortunately he didn't mean "the blushing bride," but the bride of the Atlantic—the good ship Italy. No wonder he was excited. We had had a great run up Broadway. Mr. Jones had spent the night with our friend Mr. A. J. King, editor of the *Bee-keepers' Magazine*, which was then published in New York city. Mrs. Benton and I had come over from Brooklyn; and, leaving her at a store on Broadway, I had gone with Mr. Jones to the steamer office to make some final arrangements for our journey. Coming out I said to Mr. Jones: "We've no time to lose if we get that steamer," and a dash was made up Broadway toward Wall Street, where our valises had been left and we were to change some money.

"S-s-say, Benton, d'ye know where you're going?"

"Yes, come along, Jones."

We made our legs move. Whenever I turned I saw his solid form swinging ahead; he was puffing, and the crowds made way. Jones averred that, when a tall man didn't give me the right of way, I never stopped, but simply dodged between his legs, jumped over the boot-black sitting on the curbing, and scooted on. But, of course, all such claims were due to a lively imagination and the excitement of his mind at the moment. The money was changed, and, with queer-looking pounds, shillings, and pence in our pockets we were again on our way up Broadway.

"D-d'ye know where you left Mrs. Benton?" asked Jones, still excited.

"Yes, over in that drug-store."

Her own anxiety had been not less than his; and it seems, too, that the drug-store man had begun to think that a couple of sharpers, anarchists, or something of the sort had "skipped the country" and left an unprotected lady on his hands. A hurried pull for the elevated train, then we were whirled to the steamer dock. As we left the train a street musician struck up a lively tune on a hand-organ more musical than the majority of them, while his comic little companion did queer antics. Mrs. Benton, with a *penchant* for both the music and the monkey, might have made us miss the steamer, but I got her away, however, by saying:

"Come along, Harriet; Europe's full of them!"

Then followed the days on the great rolling Atlantic. I must pass by much that might interest and amuse—how that worthy gentleman, Mr. Jones, braved the deck when the seas dashed nearly from stem to stern; how he braced himself against the sides of the cabin, holding fast to the rail, and smiled at the awful majesty of the towering billows, then suddenly, growing pale, let go his hold, slid to the ship's rail, and sadly parted with a comfortable roast-beef and plum-pudding dinner he had just enjoyed. All of us paid our tribute to the exacting sea-god Neptune, and were glad when the 15th day saw us safely anchored in the Thames with London's towers in sight.

Then followed the interesting meetings with noted bee-keepers in England, Germany, and Austria, with visits to their apiaries, especially all such as contained bees of any Eastern races, the Cyprians particularly having been cultivated for a number of years previous to this on the continent of Europe. From Trieste, Mr. Jones and myself (having parted company for the time being with the third member of our party) went by way of Egypt to Cyprus, and later both of us visited Syria and Palestine. The older readers of the apiarian journals will recall accounts of the establishment of a queen-breeding apiary in Cyprus and another in Syria, as well as the purchase of colonies of bees in Palestine.

Then, some three months later, Mr. Jones returned to America, bringing with him the first fruits of our Eastern work—queens of the Cyprian, Syrian, and Palestine races, while I remained in the Orient during the three years following, making, one winter, the long journey to India, after the giant bees, which, although obtained, were afterward lost because of serious illness in the jungles. Then followed four years' residence in Germany, with several trips to the East and two down through Italy and over to the North-African coast (Tunis) after bees. Four years more were spent in Austria, devoted chiefly to the Carniolan race. At last, after eleven years in foreign countries, we again saw our native land and heard the good mother tongue spoken, which during many of these years we had so sadly missed outside of our own little family. There were with us a couple of immigrants who had joined our company—one in Greece, the other in Germany—and whom we had named Ralph and Zoë.

Again, after the lapse of a quarter of a century from the time this first journey was undertaken, I find myself on the eve of embarking upon a still longer one, with similar work before me, not, as before, as a private undertaking, but for the United States government. I am by no means as young, yet enthusiasm remains, and, I believe, sufficient strength to do the work. On the third of June I shall sail from Philadelphia for Liverpool, and, after visiting several apiarian establishments as well as museum collections which will be in the route of a journey southeastward through Europe, I shall proceed from Constantinople to the Caucasus, in Southeastern Russia. A stay of a few weeks in this Russian province will enable me to secure, I hope, a quantity of queens for the department apiary. The race native to this region is most remarkably gentle, and possesses an industrious, hardy character, as well as being a fine builder of white combs. Queens will be mailed direct from the Caucasus to the Department for testing in the Department apiary and at various State Experiment Stations.

Crossing the Caspian Sea, the route will lead eastward some seven or eight hundred miles by rail to Bokhara, thence southward an equal distance over a less known region, where no railways exist, and only travel by caravan is possible. This is across Afghanistan, through the Hindu Kush Mountains, to the Northwest province (the Punjaub) of India. The general route eastward will be pursued near to the mountain region, until Calcutta is finally reached. From the time the Caspian Sea is crossed until this last point is reached there are great possibilities in the way of new and remarkable types of honey-bees which are as yet little known, including, of course, the giant bee of India, *Megapis dorsata* (*Apis dorsata*). From Calcutta by sea some ten days are still required to reach (via Singapore) the Philippine Islands. Here one may look for the other species of the giant bees, *Megapis zonati* (*Apis zonati*), with, very likely, also a number of smaller bees.

Along with the search for possible valuable types of bees the securing of seeds or cuttings of valuable honey-producing plants, especially such as have an economic value in addition to the production of honey, will be followed up closely.

Some account of what progress is being

made will appear from time to time in the various apiarian journals, and likewise some possible publication of the Department. Meanwhile the apiarian work of the Department will be in suitable hands, and all inquiries such as have hitherto been addressed there for information should be sent to the Department of Agriculture, Bureau of Entomology.

Washington, D. C., May 19.

UNRIPE HONEY.

This Subject, until a Few Months ago, Considered Quite Unimportant; Now More and More of Our Intelligent Bee-keepers are Seeing the Folly of Such a Practice.

BY DAN WHITE.

Now, Mr. Editor, if you will give me room I will say something again. You know I have from time to time been making strong pleas against unripe extracted honey getting into our markets. I have tried to show the benefits to be derived if every bee-keeper in the land would do his part in this line; but before going any further I will be honest, and tell you that I've been getting quite a bit of free advertising out of my articles. You remember the article that came out last June, headed "Quality or Quantity." Well, sir, orders came all the way from six to eight hundred miles from here for some of that "Fancy No. 1" honey I claimed to have. I wish you could see the compliments and good words received after these far-off customers got their honey. But I *will* tell you this much: In every instance the second and third orders came back with the understanding that they look to me for their honey supply in the future. Then, without any solicitation on my part, families club together, as they can get 100 pounds by freight as cheap as less weight. But, hold on! if I tell much more you will never allow this in print, giving away all this good advertising, so I will switch off and tell my excuse for writing at this time. GLEANINGS, for April 15, is before me. On page 416, an article headed "Unripe Extracted Honey," by E. D. Townsend, inspired me. Say, how I would like to shake hands with Mr. T.! Then here comes Virgil Weaver, on page 297, with his article, "The Production of Extracted Honey," and how to get *quantity and quality* at the same time. I am just as ready to shake hands with Mr. Weaver—yes, and give him credit for being the first one ever to refer or say one word about my article, "Quantity or Quality." You see I have always been so enthusiastic over *quality* I lost sight of every thing else, and actually tried to be so outspoken, and almost say mean things on purpose to see if some one would not come back at me. Think of it! GLEANINGS has been coming to me ever since its second year of existence. Think again! has there ever been much said through *any* of the bee journals concerning this nefarious practice, as Mr. Townsend puts it, of throwing out the unripe stuff, and by some hook or crook palm it off at the regular market price? What I mean by much never being said, the subject has been one, as I take it, of so little importance, or considered so by the mass of bee-keepers, that they have simply kept still. If we go back twenty years, when, I believe, everybody extracted unripe honey (we seemed to know no better), I was one of the number, but soon learned to know I was doing injustice to myself, was dishonest to my customers, and helping to give extracted honey a reputation that would not only deprive me of a home market but do a lasting injury to the business all over the land. I was just as outspoken some twenty years ago as to-day on this subject, and tried to say something through the bee papers; but, sir, they came back at me by the dozen with arguments in favor of thin extracted honey, and various ways of *ripening*, evaporating, and curing the stuff ready for market. Was there any one to take sides with me at that time? No, sir; I tell you, the way I was handled caused me to feel for years after like a kernel of wheat in a bushel of cockle.

The very first encouragement from any one was a few years ago when the editor of GLEANINGS was ready, and has been outspoken on this line. Now, here come two new recruits in print, and I believe we are about ready to prove to everybody interested in extracted honey that it is their duty to do every thing in their power to help repair the most radical wrong that could possibly happen to the industry.

Much has been said in print and at bee-keepers' conventions about educating the people to buy and eat honey. Are we going to keep on talking and trying to educate the millions whom we expect to consume our products, or shall we turn our attention to the few thousand honey-producers and try to educate them? How different it would be if honey were a food that people *have* to buy, like meat, milk, and many other articles of diet! The authorities would have looked up the dishonest part of it, and enacted laws to protect the people long ago. Supply and demand make the price on almost any thing. If people buy honey that just suits them they not only buy again, but they take special pains to speak of it to their friends and neighbors—yes, and even if it is the right quality, and *extracted honey*, they will put it on the table for their visitors. But if they buy honey they do not like they can hardly be persuaded to buy again; and if any thing is said about it to neighbors and friends it will not be words that will persuade them to buy. Can any one imagine the damaging effects on the one side that have been going on for years? Then, on the other hand, had nothing but a high grade of honey ever got into our markets, I for one can imagine, at least, that the supply of to-day would not equal the demand, and our product would be bringing better prices. I could refer to hundreds of instances to prove the stand taken in the matter. There is no end of positive proof; but for the benefit of our friend Weaver, and I hope others, I will say something in the way of production of extracted honey. All that friend Townsend tells us is true. He has learned from experience. He says we must have a good supply of surplus combs; and *I* will say the best investment I ever made was to get stocked up with plenty of combs. Without them I could not get quantity or quality. I have my own way of manipulation that came to me as circumstances demanded, and I do not feel satisfied unless I think I am working my bees for every ounce of honey possible.

My first work in the spring, before bees are too numerous, is to see every queen and clip her wings; and as the season advances I make the strong help up the weak by stealing, I call it—hatching brood-combs from the strong ones, and giving empty combs in place of them. In this way I have my colonies well evened up and all strong ready for business through the honey-flow. Honey is what I want, and not swarms; and I am quite successful so far as swarms are concerned. As soon as surplus commences to come in I begin to put in my surplus combs, using a division-board, and from day to day I put in combs until my chaff-hive chambers are filled with 12 or 13 combs. If honey is coming in rapidly, the critical time is at hand; and if I could not look back and see plenty of empty combs I should say the time is both serious and critical. The critical time is at hand because swarms are liable to issue—no room for honey in the hives. It would be serious to commence extracting, you know. I won't do that, so in this case I commence to get my increase by simply taking a few combs of best brood from No. 1, with enough bees to care for them, putting my empty dark brood-combs in place of those removed; then pass on to No. 2 and do the same.

I actually like to have swarms commence to issue. I can then simply cage the queen, and can go on as before; and the swarming tells me the ones that need my attention first, and I have the queen and a flood of bees out of my way while doing the work. Now, I don't make a new hive of bees from each old swarm, but put them in from different hives, until I get the required number of combs. I try to use good judgment in just how little and just how much to take away from each colony, and leave them in the best possible shape to store lots of honey.

I now think you can understand so far. You see, I have made quite a number of new colonies by the time I get over my apiary. With the hatching brood I gave them they will be strong with bees in a few days. With our usually short honey-flows I can't expect them to carry in much, so I call them my honey-ripeners by going from hive to hive as I am called, and taking combs first filled from the old hives and putting them over the new hives, using judgment as to how few and how many to take from each, putting in place enough empties to give them ample room. I should say I brush bees off all combs of honey before carrying to new colonies. In case I have any colonies that, for any reason, they never call for, their surplus room quite filled with combs, I use the room for combs filled by other bees for them to cure or ripen. This manner of manipulation has been very satisfactory. It has almost stopped all swarming after I got to taking away honey and putting empties in their places. I have fixed it so I can have nothing but perfectly ripened honey to extract any time after the season is over.

I am not claiming my manner or way of manipulation is the only one. I have no dictations to make on this line. If any one has Simplicity hives they can be tiered up according to the strength of each colony. If you have the combs at hand, that is all that is needed. If you have not the combs, get full sheets of foundation on wired frames, and set your bees to comb-building. If you are one of the many who extract from the brood-nest, stop it; get the extra combs, and your wife will not ring the bell or send the children to the field to come and hive the bees once where she now has to a dozen times. Let the extractor rest until the honey is thoroughly ripened; then take out some and you can always be proud to mention the quality of your honey to your neighbors and friends. Tell them they can always depend on getting this good quality of honey from you. Then never disappoint them. It will take time and patience to get their confidence fully. You see it is hard to forget that they at some time had paid their money for poor thin honey—some, may be, that actually soured. Take my advice, and you will see the people asking for your honey. You will eventually have a good home market and get a lasting reputation all over the country. Your ancestors and the coming generation will remember you as one not only interested in the welfare of the bee and honey industry during your life, but as one who had done all in his power to educate everybody in the right direction.

New London, Ohio.

[While it is possible that our friend Mr. White may get a little free advertising for his good honey, we are willing to give advertising of this kind to any one who is willing to make a hobby of letting honey ripen on the hives, and ripen thoroughly, instead of extracting it before it is ripe. Our readers will remember that, some years ago, I came to the conclusion that honey that was left on the hives a month after being capped over had a richness in flavor, and a body, that honey just capped did not have. It may be that, in some localities, honey can be extracted the minute it is capped over; but in most of the Northern States, I will venture to say, there will be an added flavor if the honey is left on a while longer. The first-gathered honey can be extracted to supply first orders, of course; and it should be understood, too, that the first new honey, like the first strawberries on the market, usually brings the highest price, even if it be not ripened down to the fine point described by our correspondent.

Mr. White's method of manipulating his combs to let them ripen is one that he is compelled to follow by reason of the fact that he uses the old chaff hives, which can not be tiered up. When a colony is supplied with thirteen or fourteen combs, instead of extracting, as many would do to get more room, returning the combs, he takes those same combs and puts them on another colony which he has made up as he describes, where they will continue the process of ripening. If he were using hives such as we are using, tiering up three or four high, he would be spared this trouble.

Mr. White speaks of the fact that, when an article is *really first-class*, purchasers of it will be inclined to tell their friends about it. There is such a thing as getting so much goodness or value into a thing that it sells itself. As an illustration, I think that at least a dozen people have recommended to me the Gillette razor that does not need to be sharpened. I was urged to take one on thirty days' trial. I did so, and now I am recommending it to my friends—not because I am interested in the sale of it, nor because I get a commission, but because I like to help my friends by telling them about a really good thing. The Gillette people do not advertise in our columns, so there is no ax to grind in making this statement.

To illustrate again, we have a few customers who send here for maple syrup of a certain brand. There is a certain farmer near here who never has to find customers for any of his maple syrup. The scramble is to see who will be able to get some of his fine goods, for everybody tells about this man's syrup.

Well, to come back to our subject, our friend Dan White is one of those men who produce a strictly fancy extracted honey that is *in a class by itself*. Why is it fancy? Because he lets it ripen on the hive. He has never complained about having trouble in selling honey. The fact is, he can never produce enough to take care of his trade.

For years Mr. White made his boast that the uncapping-knife goes over every inch of his combs before he extracts. I have been in some extracting-yards where not all the combs were capped over; and I have heard complaints concerning the honey coming from those same yards, that it was adulterated because it tasted queer, when, as a matter of fact, it was pure honey, but not ripened as it should have been.—Ed.]

A FEW OF THE HONEY-PLANTS OF CUBA.

BY LESLIE BURR.

Pamarosa.—The greatest honey-producing plant, if you count the individual blossoms, is the pamarosa. It is a tree that is found quite generally along our mountain streams, and has a heavy dark-green foliage. The blossom is a fuzzy-looking ball about the size of a woman's fist. The center of it is a cup, half to three-quarters of an inch in diameter. You look into one of those blossoms (a bee has just left it). All you see is the smooth shiny cup; but look again in a minute and there are two or three drops of nectar at different points inside the cup. This the blossom continues to do all through the day. As one bee leaves with a load another takes its place. Each blossom is continually worked from morning till night.

Mango.—This is a tree that has a habit of blooming at all seasons of the year. Some trees bloom every month in the year. But it matters little to the bee-keeper how many general periods of bloom the mango has, he can count on getting honey from but one of them. That is generally in February or March, at which time the bulk of the fruit is set.

Algaroba.—Besides being a honey-plant this is one of the grandest shade-trees in the world. The trunks of those trees, "fifteen or twenty feet above the ground," branch out into several large limbs which form a giant umbrella, giving a dense shade all through the summer.

Black Mangrove.—This grows on swampy land near the sea, "which is also the home of the hungriest mosquitoes in the world." which is one reason why I know but very little about it. But I can say this much: I have seen it in bloom, and a bee-yard but a short distance away, and not a bee to be found on the blossoms.

Royal Palm.—This is one of the most valuable plants to the bee-keeper. Plenty of royal palms, and the problem of summer pasturage is solved—that is, if they are of the right kind, for there are two. The Cubans call them "palma real" and "palma creolla." The first grows very tall, with a spindling trunk, "which, as it grows taller, shrinks in diameter." It seldom blossoms, and when it does the clusters are small and bear but very little fruit.

The "palma creolla" grows but about half or two-thirds the height of the first kind, and the trunks average about twice the diameter. It blossoms regularly, there generally being two bunches of berries that can be cut at the same time. The buds are great green pods four to five feet long, and six to nine inches in diameter. I have seen bunches of these palm berries that, when cut from the tree, were all that a man cared to lift off the ground.

Then, again, the royal palms do not grow to a great extent all over the island. There are plenty of them in the provinces of Pinar del Rio and Havana; but by the time you get to Santa Clara they are few and far between—so much so, in fact, that the natives thatch their houses with grass.

Puerto Principe is a land of woods and jungle, just one solid mass of vegetation, but lacks the royal palm for summer and the bellflower for midwinter. If it had those it would be a bee-keeper's paradise.

Santiago de Cuba has a few royal palms, but they are mostly of the kind that are of little or no value to the bees.

COCOANUT PALM.—This is classed by both English and Spanish writers as a good honey-plant; but what I have seen of it (and I have something like a hundred of them near by) the bees pay but very slight attention to it.

VINES.—The principal vines are the bell-flowers. I think the bee-keepers in general have a wrong impression of those plants. For instance, in GLEANINGS for last August a writer speaks of introducing the aguinaldo into the North. This might be done with the campanilla marada, or, as some call it, the aguinaldo marado; but the white bell-flower, or Christmas pop, or, as they call it in Spanish, "campanilla blanca" or "aguinaldo blanco de la Pascua," is a different thing. You might just about as well talk about growing cocoanut palms on the shores of Lake Michigan. It is a plant that keeps its foliage every month in the year, and lives as long as the trees to which it clings. I have a vine here near my door, a taffy-colored twisting thing, which I find, on measuring, is eight inches in circumference.

"Bejuco tortugo" is a vine that can not be depended on to blossom every year; but by blooming the year that the Rambler was at Taco-Taco it made it possible for him to do what he did. The vine in appearance is like a heavy ribbon that has had threads drawn on each edge, causing the center, which is longer than the edges, to alternate back and forth in a series of cuplike hollows, and on the bottom of each cup is a thorn. It blossoms in the fall, causing the bees to breed, swarm, and every thing else.

I will also add, for the benefit of those who advocate thoroughly ripe honey, never fuss with tortugo honey. If left any length of time in the combs it ferments, causing the combs to look as though they had "taken a trip on the hog," and after you get it in barrels you are still not sure of it, as there is danger of its breaking loose when you handle the casks.

Casanova, Cuba.

HIVING SWARMS ON COMB OR FULL SHEETS OF FOUNDATION A FAILURE IN IDAHO.

Plain Sections Not Popular.

BY E. F. ATWATER.

"With many there isn't one chance in fifty of a swarm swarming again any way, whether hived on combs or foundation."—Stray Straw, page 531, 1904. May be; but here in the arid West it is decidedly unsafe to hive a swarm, either forced or natural, on combs or full sheets of foundation, for comb-honey production. For three years I have persistently tested this on a large scale, and I *know* that a *large* part of the swarms hived on either combs or foundation will soon be ready to swarm again.

"More rapid progress is made" at clogging the brood-nest with honey, even with the prolific Carnio-Italians, while much of this honey goes into the supers when the swarm is hived on starters.

However, if the swarm hived on combs or foundation does not attempt to swarm again, the results will be fairly satisfactory, as a rule. Hiving on combs of sealed brood *a la* Hall and Dr. Miller, is a failure here unless with a ripe cell or a virgin, instead of a fertile queen. Using the forced-swarm plan largely, and hiving on starters, we have no fear of the bees carrying black comb from below to finish sealing sections.

To make a success of hiving on starters, the brood-nest for the new swarm must never exceed eight frames of standard size except for the first few days. About six-frame capacity is very good, though we usually contract by the use of two combs of honey or honey and brood.

The super must be so attractive that work will be resumed in it as soon as the swarm is hived; or, in other words, a super containing several bait combs, or one begun either by the parent colony or any other colony, must be used on the swarm. When Dr. Miller establishes his bees on their summer stands let him place the pairs several feet apart and he will likely secure much better results with the forced-swarm plan. Every year I like the plan better, and every year I place the hives further apart, or in some other way make each location as distinct as possible. I have a new plan to secure this result, which I shall test, and, if satisfactory, will illustrate it early in June.

Mr. W. K. Morrison is badly mistaken in thinking that the use of starters is necessarily a step backward. Let Mr. Morrison tell us how to prevent swarming profitably, for comb honey in outyards, in this locality, if he can; but don't dare to recommend his pet manipulation as outlined in past numbers of GLEANINGS, for such is worse than useless here; "hence any criticism based on the (non) use of starters is worthless." Yes, and tell Mr. Danzenbaker that the Danzenbaker-Root-Morrison plan of reducing to a single story full of brood, with a laying queen and baited supers above, has not been known to prevent swarming in a single instance in this locality; but a surer method to induce swarming can scarcely be devised.

Now a word in regard to sections and supers. I have never purchased a well-made fence separator from any firm except The A. I. Root Co.; but even when properly made they do not please me. I am discarding both the 4¼ plain and the 4×5 plain, in favor of the old standard, the much-abused "squatty old woman," the behind-the-times old sections that a writer in GLEANINGS once said should be taken and "stamped out of sight in the mud." Foolish? Never mind; our western markets all specify "no more 4×5 sections," etc., and I have other reasons. The plain section with a plain cleated separator may yet take the preference. You have also taken a step in the right direction by reducing the thickness of the cleats on the fence from $\frac{2}{12}$ to $\frac{1}{8}$ inch. And my 600 new supers will be single-tier wide-frame supers with the bottom-bar, on which the sections rest, $\frac{3}{8}$ thick, and a top-bar, *not nailed tight,* but only one small nail, not cement-coated, in each end. The little $\frac{1}{4}$-inch bottom-bars to section-holders should be discontinued, as they are pitifully frail. The largest producers around here are using supers as described above.

Meridian, Idaho.

[We should be glad to have you give your later plans.—Ed.]

ARE SOME OF THE NEW IDEAS IMPROVEMENTS?

Unspaced Frames Resting on Plain Rabbets Make the Most Convenient Hive; Wide Frames Best for Holding Sections.

BY F. GREINER.

Since keeping bees for a livelihood, now about thirty years, I have kept watch for the most convenient form of hive, one that would answer my purpose best, and I firmly believe that the very simplest hive with a common hanging frame, no spacers, is best suited to my wants. Not using metal rabbets, the top-bars of my frames are sufficiently "glued," in that the hives with bees in them can usually be moved about on a spring wagon without taking any precautionary measure to keep frames from swinging, and still they are not glued in so solidly as to interfere materially with the handling of them when it becomes necessary. In the years gone by I have spent a great deal of time rigging up my bees for moving *uselessly.* The half-story hives led me on to try moving full-story hives without securing the eleven-inch-deep frames from swinging against their neighbors. Now the getting ready of a load of bees is a very short job.

During these years I also had an eye out for the most convenient super. All sorts were tried. Our inventive spirit hit on things long tried before by others, and also on some that have never been tried since. The best invention was original but not new. I refer here to the wide-frame super, which I regard as the very best and far ahead of any of the new-pattern supers. Why the Root Co. ever dropped this is not clear in my mind. The few bee-keepers hereabout, who are using the wide frame exclusively, are well satisfied with it. Some other friends near Syracuse are using it, and do not want any thing else. The only objection that is ever raised against the wide frame is that the filled sections can not be taken out as easily as from some other supers; but this objection exists only in the imagination of those who have never used it. Friends who have visited me when I was emptying full wide-frame supers were surprised at the ease and the rapidity with which this work was being done. But supposing sections should come out a little harder, is it not worth something to have the *tops* of our sections so protected that the bees can not soil them while on the hive?

If it is desirable to have the sides of the sections covered, is it not equally desirable to have the bottoms covered? and if it is desirable to have the bottoms protected against being soiled, as in certain styles of supers, why not protect the tops, the parts which meet the eye of the would-be purchaser above the other parts? It looks to me like a huge mistake that other supers were ever adopted. I have tried a dozen different makes, have half that number in use now, among them 50 T supers, but the wide-frame super is by far the best in every respect, the T super being open to the most objections.

The pleasures of bee-keeping are greatly enhanced by using convenient hives and appliances. The wide-frame super is one of the things which help to increase our pleasures.

In using the wide frame as a section-holder there are no objections against also using no-beeway sections with it. I have fitted up over 200 supers in this way, and have had them in use ever since the no-beeway sections were adopted by others. I also use the beeways, having an equal number in use. The advantages and disadvantages are, as a matter of course, constantly and vividly kept before my eyes. After giving the matter due consideration I have arrived at this conclusion. It is another great mistake that bee-keepers made when they dropped the old-time honored $4\frac{1}{4} \times 4\frac{1}{4}$ beeway section. They have gained nothing by doing so, and produced a deal of confusion. It is said that honey in no-beeway sections brings more money in the market. I ask, "What market?" Not the hundreth part of a cent's difference is made in the markets I am acquainted with. There is no demand for no-beeway section honey *above beeways.*

The expert can handle no-beeways just as readily as beeways; but the retailer spoils many a no-beeway box in handling it when he would not the beeways. Veneering partitions in the shipping-cases are of some help, but do not entirely overcome the difficulty, besides making shipping-cases more expensive.

The cleaning of cleated separators and fences is slower work than that of plain separators; and, while this may not count for much, still it is a point in favor of beeways.

Naples, N. Y.

[When you speak of wide frames I am not sure whether you mean those holding two tiers of sections, that is, eight in all, or one holding only one tier, or four. The latter was never made by us to any extent, and consequently we never abandoned them as a feature of hive construction. The double-tier wide frame was supplanted by the T super; and I know of scarcely a bee-keeper now who favors them, because, to give the bees a double tier of sections at once, is acknowledged almost everywhere to be too much of a good thing; and I therefore conclude that you argue in favor of a single-tier wide frame holding four sections.

We find this question of preferences for frames, sections, and hives is based largely on what one is used to, or has had the most experience with. This is particularly so in all walks of life, especially toward middle life, when age grows conservative. I find it so in my case. While I believe you to be perfectly candid in your judgment of plain and beeway sections, yet the reports that come to our office are about two to one in favor of the former.

Our own market most decidedly prefers no-beeway sections, and, as a rule, pays more. Some two or three years ago Hildreth & Segelken, of New York, very strongly urged a tall section which was also a plain one, for their market—not that they were willing to pay more per lb., but because the honey in such boxes averaged better, and therefore brought more money. In our own experience the plain boxes grade higher. The same comb without the beeways looks to many people fuller than it does when the beeways are present.

I will admit this is largely a matter of opinion, and only time can decide what will be the universal box or section.

But this fact should be taken into consideration—basswood is growing scarcer yearly. The no-beeway box uses *over six square inches less of lumber, one-eighth thick,* per section, 4¼ size, than the beeway section for the same capacity. It is also sold cheaper by the dealer by 25c per thousand. As the time may come when basswood will have to be abandoned for one-piece sections, shall the bee-keeper or producer hasten on the consumption of this valuable timber by using that section which uses up timber the faster, or to put it another way, waste it? I hesitated very much about saying any thing about plain sections in these columns; but what I have said I have endeavored to give without prejudice. And yet it should be said the plain section and fence is not patented, and can be made by any one. There is, in fact, just as much money to the manufacturer in the one as the other.—ED.]

THE PRINCIPLES OF TROPICAL BEE-KEEPING.

Queen-excluder Boards Indispensable; Strained Honey Cheaper than Extracted Honey.

BY W. K. MORRISON.

Tropical bee-keeping differs perceptibly from that of northern latitudes—at least this is the reason given for the inferior quality of much tropical honey, hence we hark back to first principles. However the conditions may differ, the merchants of London, Havre, Antwerp, and Hamburg are unanimous in demanding first-class honey from their consignors, hence we shall have to keep this fact constantly in view.

One of the first requisites of a first-class honey is colorlessness. It should appear to be the color of water if possible; if not, the nearer the better. It should be free from extraneous water—practically dry. It should be free from peculiar odors. The problem is to get a honey to conform to these specifications. Perhaps nothing can better illustrate what I have to say than the frank and free admission of Editor Hutchinson, of the *Review*, that raspberry honey is colorless *provided it is extracted from new combs.* This is a terrible admission to make, but it is going back to first principles simply to state it. It follows from this that combs for extra-fine extracted honey must all be made anew every time, and queen-excluders must be used. There are not enough zinc queen-excluders used in the tropics—at least not in the West Indies and on the Spanish main. Not to use excluders on hives means inferior honey—at least the European commission dealers will class it so. Going a step further, it is true, as Editor Hutchinson says, honey must be extracted from *new* combs to be colorless.

Some one will hold up his hands in horror at the bare idea of not using good combs a second time; but this is precisely what is aimed at. If very high-grade honey is wanted, don't extract from combs that have been used once. Better get nice new combs every time. This brings us to the fact that queen-excluder zinc is one of the greatest inventions connected with bees.

Some people with notions of economy try to get along without a queen-excluder on every hive. No modern hive is complete without it. But there are other and even weightier reasons for its use. Wax is one of the most valued products of the honey-bee, and we of the tropics hold a great hand in its production. If we prevent the bees from making new combs they will simply drop their production of wax on the floor of the hive in a fluffy pile, and a valuable product is lost.

You can not stop bees in the tropics from making wax; you can only prevent them from constructing combs. They make wax any way, so it is best to let them utilize it in making combs for storing honey. In the North, where the seasons are short, sharp, and decisive it may be best to use the same combs over and over, but this is not a good principle to follow in the tropics. Then a tropical bee-master has his weather eye constantly on the wax-pile; and if he desires plenty of it, of fine quality, he simply *has* to have queen-excluder boards on all his stocks. If the brood-chamber combs have been built on good Weed foundation, as they ought to be in every case, it is amazing with what rapidity the colonies will build drone comb above the queen-excluder every time they get the opportunity. Then, also, it is simply "sport" to make wax from combs that have never been used as breeding-nests.

It requires no refining, pressing, bleaching, or other manipulation to cleanse it. It only needs melting in boiling water — nothing more. Therefore we get wax with a minimum of effort.

Where wax is being striven for, it is well to allow the combs to be completely sealed over, also not to allow the bees to build thick combs. The honey ripens faster, and there is proportionately more wax in thin combs. If the combs are cut out and put in muslin bags to drain out the honey, one man may manage a great many hives (say 500). There is not the mussy, tiresome job of uncapping, and the still more tiresome task of turning the handle of an extractor. Some may say, "But what about the diminished yield?" How do they know that the yield *is* less. As a matter of actual experience it does not appear to alter the yield of honey. But if it did we could still afford to follow this plan for the reason we can attend to a far larger number of bees this way. By getting clear of these heavy tasks we are the better able to devote our attention to the bees themselves; but there still remains the task of taking off the honey from the hives and replacing the empty chambers with starters. This is not easy work as it is usually done, but the bee-escape paves the way for easier labors. Usually tropical apiarists get along with a few escape-boards. Where one has 400 colonies, 50 escapes will be none too many. A good wheelbarrow or cart also reduces the labor; and if the hives are all under shed (as they always should be), and the hives arranged at a convenient height, labor is conserved. The bee-shed is a labor-saver of the first rank.

Personally I never use a brush, finding the bee-escape infinitely less trouble and annoyance; besides, a brush irritates bees too much to be satisfactory. Here the Heddon dictum comes in, to handle hives, not frames, therefore "don't handle the frames till they are inside the honey-house" is a good principle to follow. Three or four good honey-tanks are absolutely necessary for rapid easy work, but these need not be large, as, by this system, there is no need to "settle" or skim the honey; here we can not follow the customs of Northern and Western apiarists, for, to keep honey in an open tank in the West Indies, spells ruin. Put it into the 60-lb. tins the same day it is made, and seal tight, and remember a few rusty spots will discolor 60 lbs. of honey.

THE HOFFMAN FRAME.

It has Come to Stay.

BY HARRY LATHROP.

Mr. L. Stachelhausen, in the *Rural Bee-keeper* for May, comes out in quite a long article against the Hoffman frame. It is too late to try to disparage this frame or to try to stem the tide in its favor; and be it known that bee-keepers use and prefer it for its own sake, and not because it has been favored by manufacturers. The use of the old-fashioned loose hanging frame, as compared with the Hoffman, reminds me of what the colored porter on the sleeping-car said about being wrecked. Some one asked him which he would prefer, if he had to suffer either, to be wrecked on the ocean or on the train. He said he would prefer a train-wreck by all means, "for," said he, "if de ship goes down, den *whar is yo?* But if de train wreck and leave de track, *dar yo is.*" If you place loose hanging frames in a hive, "whar are yo?" No one knows what condition will be found on opening a hive. On the other hand, if Hoffman frames are put in a hive, "there you are." You are sure of straight combs that can be interchanged if necessary.

I started an apiary here at Bridgeport with sixty colonies of bees in Langstroth hives with hanging frames. Now I am making ready regular Dovetailed hives with Hoffman frames, and will discard the whole outfit as fast as I can make the change. I have ordered a German wax-press, and will melt up those combs and use the wax for full sheets of foundation in the new frames.

I used loose hanging frames long before the Hoffman frame was brought out by the editor of Gleanings, and thought they were all right at the time. Of late years I have been using the Hoffman frame in my home apiary, and now find that I can not tolerate the other. They are all right for the extracting-super, and so is the Hoffman if seven are used in an eight-frame hive-body. When the combs are filled out plump the end-bars will not interfere with the knife to amount to any thing.

Bridgeport, Wis.

FIRST PRIZE, SWARM OF BEES.

Some Queer Freaks of Swarming.

BY E. R. ROOT.

A little boy who wrote a composition on bees, said that they "swarm mostly on Sundays when the folks are away to church, and generally on the tops of tall trees where you will have to climb for 'em." Doubtless the boy had had some "experience" when he came from Sunday-school, of a kind that gave him a forcible reminder, in the shape of torn trowsers and scratched hands after the encounter in midair in helping to bring the bees back to mother Earth.

In the picture of the first-prize swarm shown herewith, it appears that the bees were much more accommodating. Whether they came out on Sunday or not, Mr. Errett does not say; at all events, we have absolute proof that they clustered low on a little tree, and so great was the weight of them that they bent the tree downward, where they could be easily hived. The most accommodating swarms, no doubt, are those that cluster on low bushes; and this tendency the bee-keeeper himself can encourage to a great extent by locating his yard in an orchard of low trees where an ordinary step-ladder or common house-ladder would reach them easily. In our home yard we have grapevine trellises in front of each hive, not over seven feet high, primarily for shade; secondarily they serve a very useful purpose in enticing stray swarms; and experience shows that not one in ten will

FIRST-PRIZE PHOTO OF A SWARM OF BEES BY A. L. ERRETT, MADISON, PA.

alight on the tall evergreens outskirting the apiary.

Two Sundays ago our Sunday watchman (for we have such a man to look after our plant to give notice in case of fire and sometimes of swarms) reported that a swarm was out. As the boys were away, it became my duty to hive the bees. But this Sunday swarm, departing from the usual customs of swarms at the Home of the Honey-bees, saw fit to fly high and to hover around near the top of one of our tall evergreens, something over 30 feet high. As if to be less accommodating still, it separated into three clusters, each cluster being over 20 feet above the ground. I soon brought into play a step-ladder and a Manum swarm-catcher with a sixteen-foot pole. I jarred a part of the bees of each cluster into the basket of the catcher, closed the lid, then stood the machine up on its three legs with a bunch of bees inside of the wire-cloth basket in the air. With a long pole I then began a systematic and persistent pounding on the three limbs on which the bees had been hanging previously. The large bunch of bees in the basket in the meantime began calling, and in a few minutes the rest of the bees deserted their lofty elevations and clustered on the outside of the wire-cloth basket with their fellows. In a few minutes more I had them dumped into a Danzenbaker hive.

Our special prize committee, or committee whose duty it is to award prizes on these photos, did not assign any reason why this particular one should be given first honors; but if any one of them had had the experience of climbing an elm-tree to bring down a swarm, he would probably give a picture showing a swarm close to the ground the first consideration, irrespective of the merits of any other pose or detail in the picture.

The particular swarm here shown is evidently a large one, weighing not less than 10 lbs., I should judge from the appearance, and the further fact that a fruit-tree having a trunk over an inch in diameter was bent clear over.

Speaking of large swarms, the heaviest one we ever had weighed 15 lbs. Estimating 4500 bees to the pound, which is very nearly right for bees of a swarm, we have an aggregate of 67,500. This particular swarm before us could scarcely have weighed less than 10 lbs., so the number of bees would not be less than 45,000.

There is nothing like the weight of numbers, either in the bee world nor in that larger world in which we live and have our being. I concluded, therefore, that the accessibility for general hiving purposes, and the size of this particular bunch of bees, were some of the deciding factors to cause the committee to award the prize as they did. And that leads me to say that the com-

THE CABIN IN THE WOODS AND ITS SURROUNDINGS.

mittee met in executive session, and that their doings are as secret as those of a grand jury.

THE CABIN IN THE WOODS.

Some Glimpses of the Surrounding Woods.

BY A. I. ROOT.

After the convention at Central Lake was over—see page 496—I was planning to make a call at the cabin, where one of my neighbors was making maple sugar right in the height of the sugar season, the first week in April. Bro. Hutchinson had been wanting to see my ranch for some time, and so he went along with me, taking his camera, etc.; and the beautiful views we submit to you in this issue are some of his work.

The one on p. 661 gives us a view of Grand Traverse Bay as it appears from the lawn in front of the cabin. Behind those large trees on the right of the picture is "Dick Bassett's Island," of which you have probably heard—the Robinson Crusoe island of America. The ground goes down so abruptly toward the bay that the brush you see sticking up in the center of the picture are the tops of tall trees, some of them evergreens as you will notice. The land visible a way off across the bay is the peninsula or tongue that shoots down from the north.

A GLIMPSE OF ONE OF THE OLD LUMBER-ROADS THROUGH THE WOODS ADJOINING THE CABIN.

On this tongue of land, almost surrounded by water, are the Ne-ah-ta-wan-ta Hotel, Old Mission, and other celebrated health resorts.

The cabin itself, I need not mention to tell you what it is. On top of the hill back of the cabin you will notice that beautiful combination of maples, beeches, and evergreens which I have so many times described. You can distinguish the maples by the bright new tin sap-pails hanging to the trees. You can get a little glimpse of my strawberry-patch between the house and the trees on the hill. Our flower-garden is on the right of the picture near the door-step. The peach-trees you will see scattered in the front yard, and clear up among the forest-trees, where we cleared the forest away. The little kitchen with its white brick chimney rising above is the spot where Mrs. Root and I spend so many happy hours. It is so diminutive that, when we are both in the kitchen at once, we are necessarily pretty close together. But that did not make any trouble at all, any more than it did when we were in our teens instead of being over sixty years of age.

The water-pipe from the spring away off in the opposite corner of our forty acres comes right up near the kitchen door, and it gives water enough so I enjoy experimenting with strawberries and other garden stuff under the influence of abundant irrigation. On the sandy loam around the cabin there is not much danger of overwatering.

Mr. Hutchinson and myself I need not describe. You know us both, or at least every bee-keeper in our land ought to know us. You can not very well afford *not* to know Bro. Hutchinson, and I do not think you can afford to omit taking his journal.

I could talk all day about the things I love in and around that cabin, but we must hasten on.

Let us now get down to the sugar-camp. We will take the path that leads from that little kitchen down the hill into the ravine, and here is what we find.

You will recognize me by my fur cap, and because my head is so near that of the horse. One of the Spencer boys is on top of the barrel of sap. They draw their sap with a light buggy because they happen to have it, and it seems to be very convenient in getting over rough places in the woods. Mrs. Spencer, who bosses the camp week days, and superintends the Sunday-school on Sunday, is standing in the sugar-house door; but the picture is hardly accurate enough to give us much of a glimpse of her. She is one of God's jewels—one of the kind who love righteousness and hate iniquity, for her children's sake if for no other reason; and

THE SUGAR-HOUSE AND SUGAR-CAMP NEAR THE CABIN IN THE WOODS.

I rather think she likes maple sugar also. I wish Bro. Hutchinson had taken a view of the inside of the sugar-house, for it was the neatest-looking place inside I ever saw for an establishment of that kind. All the tin and brass work of my new apparatus was shining bright. Every thing was swept up; all the utensils were hung up in their proper places, and it occurred to me then that a woman could supervise maple-sugar making better than any man. Her big stout boys do so much of the hard work that she is spared the heavy lifting. And, by the way, there are two of about as nice Spencer girls in that family as were ever found in that woods or any other. One of them is named Fern; and if you could see her you would think the woods a very proper place for such a girl, and the name a very appropriate one.

The big man standing up alone is the driver who brought us over from Traverse City. Bro. Hutchinson instructed him how to "press the button" when he was taking the picture of Bro. H. and myself. Ernest insisted on an enlarged view of both of us. I did not know it was enlarged until he had it done, and I insisted that it was not worth so much space. I suppose it is just about as we looked when we had our many pleasant talks during that beautiful spring day in the woods. It just occurs to me that Bro. Hutchinson is sitting on the big white stone where I used to pound my beef-steak when Mrs. Root was gone, and I was there alone. You need not be afraid to sit down to a dinner of beef-steak when you come to visit us, because, if Mrs. Root is around, she will not allow any of my backwoods methods of getting dinner.

On page 659 we give you a glimpse of one of the old lumber-roads. The big lumber was cut off some thirty or forty years ago, and an undergrowth has sprung up so thick you can hardly crawl through it in many places. Right back of where I stood there is a stump of a large basswood-tree. I do not know when the tree was cut, but you will notice there are almost a dozen young basswoods, some of them nearly a foot in diameter, that have sprung up where the old tree was cut down; and basswoods will do that every time if you keep cattle away from the young shoots. The old lumber-road in the foreground was worn smooth and hard years ago, and now in many places it is covered with a beautiful soft moss—nature's upholstering. This old road makes one of the beautiful winding paths through the woods where the children go to day school and to Sunday-school. Mrs. Root and I often remarked what a bright picture it was to see the neat tidy children,

GRAND TRAVERSE BAY AS VIEWED FROM THE LAWN IN FRONT OF A. I. ROOT'S CABIN.

with dinner-pails, passing through these lovely wild-wood paths every morning and evening.

Perhaps I had better stop now before I give you any more of a fever to have a cabin of your own somewhere out in the woods. But I do think, dear friends, that a lot of us would find health and happiness by kicking out of the traces of fashion and folly, and going out to such a sylvan retreat where we can wear out our old clothes, and live on as many dimes as it costs us dollars with all the paraphernalia of the towns and cities that we may live "in style."

DR. MILLER NOT THE ONLY MAN WHO USES NAIL-SPACED FRAMES.

Why Italians are More Proof Against Foul Brood than the Blacks.

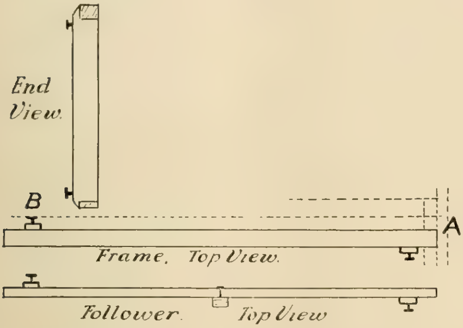
BY R. BEUHNE.

I have been greatly interested in the many articles on Hoffman and other frames. In a footnote to spacing frames, page 1158, you say: "I wonder if the doctor is the only one who uses nail spacers to any extent." I may tell you he is not. I have

A. I. Root. W. Z. Hutchinson.

A COUPLE OF BEE-JOURNAL EDITORS HAVING A DISCUSSION.

used nail spacers for about ten years, and all my frames (260 colonies) are nail-spaced, and I know of at least six other apiaries and several others the owners of which are going to discard the Hoffman in favor of nail-spaced frames as they require fresh supplies. All these apiaries are run for extracted honey, and for that very reason the nail spacing has been adopted.



With a frame as shown in the drawing, the objections you have so often urged against nail spacing do not exist. The nails do not catch in the extractor-baskets when the frame is dropped into the side nearest the operator and with the top-bar to the left; and they are not in the way of the uncapping-knife as top, bottom, and one side-bar are level on each side. I use a twelve-inch knife, stand the frame on one end, top-bar nearest to me, and draw the knife upward from A to B, uncapping the whole face of the comb in one cut, top and bottom bar acting as a gauge to the beveled edge of the knife. In this way I can uncap five of these frames to two Hoffmans.

The spacing is 1⅜, nine frames and follower in a ten-frame body for brood, and nine frames without follower over a queen-excluder. One hive-wall and the follower have projections to match the frames, the follower being tightened by a piece of ½×½, with projecting nail resting in cut in follower.

The frame is made, top-bar ⅞×½; side-bars 1⅛×$\frac{7}{16}$; bottom-bar ⅞×$\frac{5}{16}$. Top and bottom bars are of white Baltic pine, which is much stiffer and only half the price of American lumber (here).

In reference to immunity of Italians from foul brood, page 1144, there is, here at any rate, no doubt on the point; but the reason? You say possibly blacks, being more inclined to steal, might account for it. Why, I always thought Italians kept free from foul brood because they were much better at removing any foreign substance, dead larvæ, or wax-moth grub from the comb than blacks.

At the autumn overhaul of colonies I found five cakes of foul brood all in colonies of blacks, of which I have only seven stocks. I killed all the black queens and introduced pure Italians. As they bred nearly all through the winter they came out as Italians in spring (September), and perfectly clean, and they are perfectly healthy still (February), although I never cut out a cell or doctored them in any way. True, the cases were mild ones, and the locality is not so favorable to foul brood as some others; but there was no doubt about its being real foul brood, of which disease I had some wholesale experience in another part of this State.

I have, however, also had Italians which would not keep foul brood under, and have made it a practice for years past to kill the queens of all colonies showing either foul brood or paralysis.

Tooborac, Aus., Feb. 24.

[Your nail-spaced frame is an improvement over that used by Dr. Miller, in that the wood projects on one side just far enough to protect the keen edge of the uncapping-knife. Then your arrangement of the spacers on diagonally opposite corners, and your special manner of procedure in uncapping, enable you to overcome, to a great extent, the objections to the nails. The general and almost only objection is that they interfere with the baskets of the extractor and in uncapping.

Regarding the immunity of Italians to foul brood, I believe you have suggested a very good reason why they protect themselves and the blacks do not—namely, their disposition to clean up their combs of all filth and waste matter. This, together with the further fact that they are a little less inclined to rob than blacks or hybrids, will explain why they resist the disease, and also why they do not catch it in the first place as readily as the German race.—Ed.]

MUSTARD AS A HONEY-PLANT.

Requires little Cultivation; Seed valuable; Blossoming Period from a Month to Ten Weeks; Honey Mild, and of Good Color.

BY W. J. OATES.

I notice in the A B C of Bee Culture that you would like to have the results of some practical experiments in regard to mustard as a honey-plant, and the amount of seed it produces.

Here at Lompoc it is grown in merchantable quantities, equaled, perhaps, by no other place in the world, excepting, possibly, Austria, which is a competitor in our markets. From this crop alone in a single year the farmers of this valley have realized a quarter of a million dollars. The average yield per acre is from 800 to 1000 pounds, though in wet seasons a ton is a more common figure. The average price of the seed is 3 cents per pound, and as high as 8 cents has been obtained. Last year it sold for 5 cents.

Its cultivation is easy and inexpensive; and the general summary of the experience of farmers here is that the price of mustard has never touched so low a figure, compared with cost of production, as other farm products, and has far exceeded any or all of them at times. But it must be grown in rotation with other crops, and will not produce bountifully two seasons in succession on the same land. It is sown here any time from the middle of February till the end of April. About 10 to 15 pounds of seed is sown to the acre, either broadcast or with a specially devised drill, which, although sowing it more evenly, is about the same as broadcasting. No cultivating is needed, and there is nothing to do till your crop is ready for the harvest.

There are two kinds grown here—the English yellow, and the Trieste, or red. The latter is an Austrian product, and gets its name from a town in that country in the vicinity of which it is grown abundantly.

When the majority of the pods are ripe it is ready for the reaper; but care should be exercised in cutting, or lots of the seed will be wasted. It is better to cut in the early morning or late in the afternoon when there is moisture in the air, which toughens the pods and does not cause it to shell out so easily. The red should be cut somewhat green, for it shells very freely. Both should be left from a week to ten days before commencing thrashing.

The thrashing is very simple. A heavy sheet of hop-cloth, 50×60 feet, is spread out on the ground, and two loads from a tight header-bed are dumped thereon. A rope is so fixed in the wagon that the whole load is dumped at once. It is then spread out in a circle, and a huge wooden roller is run around on it a while. It is then turned, and the operation repeated, when you are soon ready for more. When the seed accumulates it is dragged to the center of the sheet; and when your sheet is full you are ready to commence operations with the fanning-mill.

The Chinese variety is not grown here, and I don't think it has ever been tried. But I am convinced that, if there were profit in growing it, it would have been tried.

The bees work alike on both yellow and red, which leads me to believe that there is no difference in the amount of nectar secreted. The blossoming-period lasts about a month; and where the sowings are made at different intervals it can be strung over a period of ten weeks.

The honey is mild in flavor and light in color, and commands here the same price as sage. Though not as heavy-bodied a honey as alfalfa, it has the same tendency to candy quickly. I have had it candy in the tank in four or five days; but to obviate this, we have devised a tank with a glass top which is covered with a shutter till time to draw the honey off, when it is removed and old Sol soon does the rest. This idea was one of Mr. Miles, a former bee-keeper of this place.

I don't know why mustard could not be grown in any part of this country, as it is profitable for the seed alone. It would be of much more value to one who keeps bees as a side issue with his farm.

Lompoc, Cal., Feb. 1.

AGE AT WHICH BEES FIRST CARRY POLLEN.

BY DR. C. C. MILLER.

Referring to the alleged proof that bees five days old carried in pollen, Mr. Samuel Suddaby expresses doubt as to the completeness of the proof, and raises the question whether it is not possible that the pollen-carrying bees might not have come from elsewhere. The doubt is legitimate, and the question entirely fair. Moreover, there are general principles involved of which at least the younger readers may be ignorant, and of which it is sometimes very important they should be informed; so I am glad of the opportunity to give the matter a somewhat full discussion.

Mr. S. asks, "Was it impossible for bees to get into that hive?" I feel warranted in saying that, for the first five days, it was impossible for any bee to enter from the outside. It was closed bee-tight. The hive was placed over another hive containing a full colony, the upper hive having a solid bottom nailed to it (years ago my hives had bottoms nailed on) and in that bottom was a two-inch hole to allow the heat to pass up from below. To prevent passage of the bees, wire cloth was nailed over the hole above; and, to prevent any communication through the wire cloth, another piece of wire cloth was nailed over the hole on the under side.

Then Mr. S. suggests the possibility that, when the hive was opened at the end of the five days, the bees entering with pollen may have been bees from other colonies, citing this special instance: "Last year I got an Italian queen and put her in one of my hives; and before the summer was over I saw Italian bees in at least two hives other than the one in which I put the queen. They appeared to be working the same as the other bees in the hive."

It is quite true that sometimes—perhaps it should be said oftentimes—bees enter the wrong hive on returning from the field, and, being well laden, they are kindly received and given their naturalization papers. A homeward-bound bee, heavily laden, and wearied with its long flight, may be beaten to the ground in front of some hive other than its own. Without rising on its wings to take its bearings, it crawls directly into the hive, and without further ado is adopted as one of the family.

Put twenty hives in a straight row, six feet apart—ten feet if you like—on a level prairie with never a tree or other landmark except the hives themselves, and you may expect no little mixing. Bees are not good enough at figures to tell for certain whether their hive is the ninth or tenth from the end of the row, and so a bee may go ten feet out of its way to enter the wrong hive.

Paradoxical as it may sound, the same bee that would make a mistake of ten feet can not be induced to make a mistake of six inches under the right circumstances. In early spring, before bees have flown, close the entrance of an eight-frame hive all but three or four inches at the right end. After the bees have been flying busily for two or three weeks, close the right end, and allow three or four inches opening at the left end. The bees, upon returning from the field, will go straight to the closed right end, taking quite a while to find the opening at the left end, and it will be days before they stop going first to the right end.

You see the bees go by looks, without carefully measuring distances. The bee may go to a wrong hive ten feet away because it looks just like its own; but it will not enter an opening only six inches distant at the other end of the hive-entrance, because the left end doesn't look like the right end.

Well, of what practical value is all this? For one thing, the man who fully understands that it is not uncommon for bees to enter wrong hives will not hastily condemn as impure an Italian queen because he finds in her hive a few black or hybrid bees that have come from other hives.

For another thing, a proper understanding of the matters that have been mentioned will allow us to increase the number of colonies on the same ground without increasing the danger of bees entering wrong hives. Take that row of twenty hives previously mentioned, and somewhere near the middle of the row set a tree or a fence-post in front of the hives, or even behind them. A hive at the right of the post will not look like a hive at the left; neither will the second hive at one side of the post look like the first or third. In my time I have used a good many double hives, a bee-tight partition in the center, with both entrances in front. Although the entrances were not six inches apart, I never had occasion to believe that a young queen on her return from her wedding-excursion ever entered the wrong side.

Again, a proper understanding will allow us so to place our hives as to double the number on the same surface of ground. Take again that row of twenty hives at equal distances. By the side of each hive in the row, and close up to it, you can set down another hive, doubling the number of hives in the row, and there will be no more danger of the bees mixing than there was before. A bee belonging to No. 14 is more likely to get into No. 12 or No. 16 than to get into No. 13, which is nearest to it.

Let us now turn to the question at issue. The queen was fastened in the hive, with no bees except those in the cells. No bee could enter from outside till the hive was opened at the expiration of the five days. A worker-bee from elsewhere, beaten to the ground by the wind, would not crawl into this hive just opened, but would crawl into the hive under it, standing on the ground. A worker from the hive below, on returning from the field, would not make the mistake of entering a place looking so unlike its regular entrance. Still less would a bee from any other hive make such a mistake, unless there was standing near by an entrance to a second story, and nothing of the kind was there. Even supposing it possible that a bee might mistake this upper entrance for its own lower entrance, would it be likely that, within an hour, there would be a number of bees from elsewhere carrying pollen into a place where not a bee had before been flying? Moreover, the appearance of the bees was not that of old bees, but of bees only a few days old.

Mr. Suddaby, take the case.

Marengo, Ill.

Conversations
With
Doolittle

AGE LIMIT OF BEES.

"Is this Mr. Doolittle the bee-man?"

"My name is Doolittle, and I am a lover of the honey-bee. If that makes a 'bee-man,' then this is certainly Doolittle the bee-man."

"That being the case, I want a little talk with you about how long a bee can live under ordinary circumstances. That is, what is the average life of the worker-bee, the drone, and the queen?"

"Why do you ask these questions? Do not the bee-books tell you about these things?"

"I have read considerably in this matter, and heard more; but as no two seem to agree I thought I would come and see you about the matter, as it has much to do with many of our manipulations in making swarms, etc."

"Yes, but probably you will think I do not agree with you and others any more than you say they agree."

"That may be so; but I had not thought of that part of the matter. Any way, I should like the results of your years of experience in this matter. Why, only the other day a man told me that bees lived a year and a half, and the very next day another person told me that 30 days was the limit of their life during the summer season."

"Surely, those ideas were very different, the first one being entirely out of the way unless we except the queen, and the last being in the extreme. But it has always seemed to me that it was a crime for bee-keepers to be ignorant on these matters, when one experiment would tell them the truth and convince them that the average life of the worker-bee is about 45 days during the summer or the working season, or a half more than the 30 days told you by the last person, and 16½ months less than that given by the first."

"Well, I did not know that there was any easy way of telling the truth in this matter. How is it done?"

"Before the advent of the Italian bee it was not so easy; but with any two distinct races, like the Germans and the Italians, the matter is quite simple. Take a colony of black or German bees, for instance, and about the tenth of June take their queen away and introduce an Italian queen, keeping record of the date on which the change was made. In 21 days the last black bee will have emerged from its cell; and if the Italian queen went to laying immediately, the first yellow bee will have made its appearance, the time of the appearance of the first Italian bee being jotted down also."

"Ah! I begin to see now. I had not thought that the color of the bees would help in this matter. Go on."

"If your experience is any thing like what I have had when conducting these experiments you will find that, approximately, which in this case means not varying more than a few hours to a day or two, at the end of 45 days from the time the last black bee emerged from its cell, no black bees will be found in that colony. At 40 days, plenty of black bees can be seen, they becoming less and less each day, so that, on the 44th day, there will be very few indeed left, nearly all being of the yellow race. Remember this is for the summer months, or during the working season, and does not apply at all to the winter."

"How is that?"

"The life of the bee depends on the work it does. Thus when it labors the most its life is the shortest. Hence it comes about that, through the inactivity induced by cold weather, the bee can live from seven to eight months."

"That is getting down to a pretty fine thing. How do you tell that?"

"This is proved on the same principle as the other—simply by changing the queen as before, only it is done this time from the first to the middle of September. About the first of October the last black bee will have emerged from its cell. Eight months would carry us to about June first, and at this time there are generally only Italian bees in such a colony, although I have known a few black bees to live as late as June 15th to 20th, where a colony had been so treated."

"Well, that is an interesting experiment, surely, and proves that what I have been told was only a guess."

"Yes, all of these experiments have been very interesting to me, as well as proving the things which I wished to know. And there was another very interesting part to this last experiment, which was this: When spring comes, or about April first, in this locality, there would be very few yellow bees in such a colony, which told me that very little brood was reared from October until April, as well as telling me that more bees die in two months in the spring, from April 1st to June 1st, than all that die during the six months from October 1st to April 1st, or the six months of winter. And for this reason all possible precaution should be taken to preserve the life of those old bees during spring, so that they do not die off too suddenly, or have what is known as spring dwindling, before the brood has emerged from the cells in sufficient numbers to keep the colony in a prosperous condition."

"Well, surely, there is lots to these things which I had not thought possible for us to tell, and I hope to profit more in future by way of experimenting in different things pertaining to the bees. But how about the life of the drone?"

"That is not so easily told, for his life is regulated very largely by the whims of the workers, for drones are usually killed, or driven off by the workers, long before they would die a natural death from old age."

"I have noticed the bees driving them out, and had often wondered why they did it."

"Any sudden cessation in the flow of nectar from the fields is often considered sufficient reason for the driving off or killing of drones; but most apiarists think the drones would live to about the same length of life as is attained by the workers; but from a close observation of those which I have tried to preserve in queenless colonies for the late fertilization of queens during the fall months, I am of the opinion that they are of a little shorter life, for it has been a rare thing to find one out of a certain lot kept, after the lapse of forty days from the time of their emerging."

"Then you would put the life of the drone as about forty days?"

"I should be that way inclined; but a queenless colony is not a colony in a normal condition, and drones kept in such colonies might wear out faster than in a normal colony, if such a one would not think of driving them off."

"That looks reasonable, and I should like to talk on this matter further; but I see the time is nearly up when I must be going, and I want to know about the life of the queen first."

"The average life of the queen is about three years, although some have been known to live nearly six years. A man who once purchased a queen from my apiary told me she lived to be five years and five months old; and I had one which I purchased of The A. I. Root Company that lived to be five years and nearly four months, she doing good work up to the last month she lived."

"That is ahead of any thing I ever thought of. I have been told that it was better not to keep queens that were over two years old."

"There is no question but that a queen reared during July, August, or September of any year will do as good work the following summer as she ever will; but it is a question whether it will be a paying undertaking to remove the queens in the apiary at the end of the second year or summer's work, and replace them with young queens."

"What do *you* do in this matter?"

"I have experimented along this line to a considerable extent, and the result is that I do not now make it a practice to supersede my queens every two years, for I find that the bees are quick to understand when their mother is failing, and will supersede their own queen when she gets to be too old to be of service to them. So I now trust the matter to the bees very largely, believing that they know what is best for them in this respect better than I do."

[We shall soon publish an article by E. W. Alexander on this subject.—Ed.]

Heads of Grain
from different fields

KILLING BEES WITH KINDNESS.

I have kept and studied bees for a number of years, and kept them in all kinds of hives, but can not boast of any great success with them; in fact, the more I study the more I meet with peculiarities. Last year was a good one for increase, but for some reason most of the bees had but very little honey. I had about 30 colonies, and now have only 4 left. In the A B C of Bee Culture it says a swarm in May is worth a load of hay, etc.; but I found it altogether different last year. My early swarms didn't gather enough to winter through. while my daughter put a swarm, that evidently came around, in a soap-box in August, and they came out a strong colony this spring with honey left over.

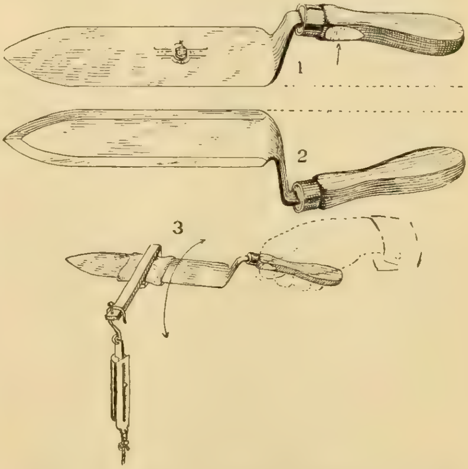
My neighbor has a swarm in an old dwelling-house, not occupied, on the west side between the scantling — nothing but poor plaster on the inside, and cottonwood siding on the outside, and there they winter through ready for business on a warm winter day, and gather honey to "beat the band," while those that are nicely accommodated in a Danzenbaker hive with quilts and cushions die off or starve, or are frozen to death. Don't you think it is the same with bees as it is with us? The more we baby ourselves the more sensitive and tender we get; and the warmer the quarters we occupy in winter the easier we catch cold when forced to be exposed. **Louis Gottnla.**

Elk Creek, Nebraska.

[Friend G., the very thing you have commented on has come up more or less for thirty or forty years past; and while I can not think it true that intelligent care and pains are wasted or thrown away, one thing has come out very prominently in reports for years past. Bees with abundant ventilation right up through the hive, and plenty of fresh air so as to dry out the dampness, will often winter all right season after season, while others in the same locality that are fixed up with what you call "tight warm hives" become damp, freeze, or get the dysentery or something else. Now, while this is true, our old veterans have learned the trade of wintering colonies by the hundreds, season after season, with a loss so small, say one or two per cent, that it is hardly worth mentioning. When I commenced keeping bees we had so many losses in winter from spring dwindling, etc., that I thought seriously of giving up the business; but for fifteen or twenty years past we have had no losses worth mentioning. This is because we have learned how to prepare the bees for winter in the proper way. If you follow the A B C book or other standard works I am sure you will have like success.—A. I. R.]

A FLAT HONEY-KNIFE HANDLE.

It is important to have a flat honey-knife handle. Put the knife in a vise and plane the handle half oval or flat. Whittle it with a jack-knife. It is the best thing I have discovered lately. **W. L. Coggshall.**



[Mr. Coggshall suggested that we try the experiment shown under 3, and we found that much more could be raised with the square handle than with the round, and with much less effort. We believe that this new form of handle would meet with the approval of the majority of bee-keepers. —Ed.]

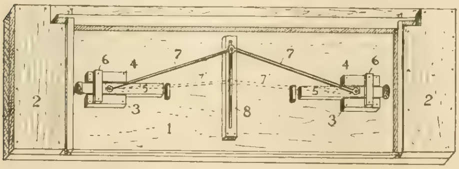
MAKING SWARMS STAY IN DANZ. HIVES.

I notice on page 490 the inquiry of Mr. J. D. Barfield in regard to having bees stay in the Danzenbaker hive when first hived. I have been using the Danzenbaker hive for the past five years, and at first I had the same trouble that he mentions. I tried giving more room by adding supers above, but that did not remove the trouble. Nearly every swarm hived would swarm out once or twice until I learned to put an empty super or hive-body *under* the brood-nest, and then I found the bees would stay every time. I also put blocks ⅞ inch thick under the front of the hive-body to enlarge the entrance. The empty super or hive-body must be removed in 24 or 48 hours, or the bees will build comb on the bottom of the frames, extending down into the empty body below. Another thing that I think is very necessary to have the bees stay hived is to have the stock of empty hives piled in a cool place so that they will be as cool as possible when the bees are put in them. I think the bees swarm out as Mr. Barfield mentions, not so much from a desire to abscond, nor because there is anything objectionable in the hive, but because it is too hot for bees warmed up by the exercise of swarming.

Bowling Green, O. A. J. Kilgore.

A BLOCK FOR HOLDING FRAMES WHILE NAILING THEM TOGETHER.

Here is a block which I have used for some time, and think it the best I ever saw for holding the frames while nailing them. The construction of the device will be sufficiently clear from the illustration.



To use this, lay it down on the bench. Place two end-bars in position, and pull down hinge No. 7 until it is straight, and it will, if properly adjusted, hold them so firmly by the rubber buffers on the ends of piece No. 5 that no amount of hammering will jar them loose. H. R. Buffham.

Newman, Cal.

[This device would probably work satisfactorily for frames whose top-bars are nailed from the top. For frames whose top-bars are secured by nails driven through the end-bars from the side, some other plan would doubtless work better.

We would suggest that the thick block, No. 1, be made a little narrower so that the top-bar may rest on the bench if the block is turned on edge for the purpose of nailing the bottom-bars.—Ed.]

SOFT MAPLE AS A MATERIAL FOR SECTIONS; CHECK THE DESTRUCTION OF BASSWOOD FOR TIMBER.

Mr. Root:—I notice that, in your comment on pasteboard sections, May 15, you state that no wood has been found to take the place of basswood, and bend without breaking. As a prospective bee-keeper I am greatly interested in the preservation and, if possible, the increase of basswood-trees; hence it occurs to me to ask if soft maple, sometimes called red maple, has ever been tried for sections. The wood is a beautiful creamy white, cuts cleanly and easily, holds a smooth surface, and is quite tough when properly seasoned. My knowledge of it comes from its use for turning and carving when I was a boy. The tree grows rapidly, is fairly abundant, easily raised from seed, and stands transplanting and civilization well. There are, or were, hundreds of acres of it in Iowa. My memory is that a State law, in force in the 70's, perhaps still effective, rebated a certain amount of the taxes of each man for every acre of trees he planted, and soft maple was largely used for this. I think the loss of the maple as a pollen plant would be much more than balanced by the saving of the basswood as a honey-plant.

Another thought has occurred to me, and that is, that *organized effort*—possibly by the National Association, could do much good for the bee-keepers of the country by checking the destruction of basswoods for timber, and especially by encouraging and assisting in the planting of basswoods. Through the schools on arbor day, and through the State and National experiment stations and colleges, young trees could be grown and distributed. It may sound like a dream, but I believe there is good hard sense and good hard dollars back of it if the right people will take it up.

Willmette, Ill. D. Farnsworth.

[The objection to soft maple is that it would be altogether too hard to work to advantage. Basswood is almost as soft as pine; and on wood-working machinery it would work about as easily. The soft maple would make the labor on sections cost a good deal more per thousand; moreover, it would not grow nearly as rapidly as basswood. We have had repeated examples in our locality, where the latter would make about twice the trunk diameter of the former in five or ten years. At our old homestead one of the soft maples blew down, and was, at the time, about four inches in diameter. We set out a basswood with a trunk only as big as our thumb in its place. Over twenty years have now elapsed, and the trunk of the basswood is considerably larger than the soft maples alongside of it that had a start of some seven or eight years' growth.

But there is another point to be considered. Prof. Cook has pointed out that soft maples have many insect enemies in the way of borers. It is not an uncommon thing to see a tree of this kind "dying at the top." In some of our parks it is getting to be a real problem to save the soft maples. The same authority, Prof. Cook, says the basswood is almost entirely free from insect enemies.

The owner of one of our large pleasure-resorts is about to set out a large number of basswoods, for he says he can already see the beginning of the end of his soft maples. Without shade of some sort, his resort will be ruined.

Check the consumption of basswood timber? I do not know how we are going to do it. The furniture and box makers use a hundred times as much of this valuable wood as the manufacturers of bee-keepers' supplies. The bee interests are only as a drop in the bucket, and it would be hard to get legislation that would prevent the destruction of these trees.—ED.]

A GENERAL MIX-UP OF FOUR OR FIVE SWARMS OF BEES.

I have 100 colonies of bees, although but a beginner. I did not want any increase this year, so I tried the returning plan. One day five prime swarms came out at the same time and lit together. I hived them in three new hives, and some stayed and some went away. What would you do in such a case? Next day they tried it again, and I thought I would stop up the hive when they commenced to swarm, and let out one at a time so I could return them. However, I would let enough bees out to be sure of the queen; and when they had all alighted together I would hive them. Afterward I would look and find three or four queens balled; then I would destroy them and give the bees to a weak colony. Was this the best thing to do? They kept on swarming this way one month (April) until the colony had nothing but drones left. What shall I do with them? There was no brood left, so I broke them up and put in prime swarms. Was that the thing to do? J. WHITAM.

Kings City, Cal., May 8, 1905.

[A colony that has been hived, and which will not stay hived, will sometimes become very balky. I have advised giving such a colony a frame of unsealed brood after hiving, and taking them down immediately into a dark cellar, and keeping them there for a day or two, where they will have a chance to "cool off" and to give their own body odor to the hive and frames.

When a swarm has once been hived, and then comes out again, it is useless to put it back. It may stay a second time, but the chances are that it will come out again.

When several swarms come out at once, and mix up, the only thing to be done is to scoop dipperfuls of them into several hives. The divisions that do not happen to get any queens will be liable to swarm out again; and it is well to watch carefully to see which colonies are queenless. Queens can sometimes be found by balls of bees, for they are so thoroughly mixed that a distinct queen odor is lacking. As the bees are a general mixture, each queen when separated from the ball should be caged and introduced to the bees in the regular way.

I do not quite understand what you mean when you say you broke them up and put in prime swarms, unless you gave other swarms to the hive which these bees originally occupied.—ED.]

ENTRANCE UNDER THE HIVES.

I can not help telling you how much pleasure my new bee-entrance gives me. The bees enter under the hive. The bottom-board is one inch shorter than the hive, and this makes the entrance one inch wide across the hive. The bees are more contented, and work faster in it; the robbers never trouble them; the millers and flies do not trouble them so much; they very seldom swarm and go back—the queen must drop or fly; neither rain, snow, nor cold wind harms them. I have also a one-inch air-hole in the back of the brood-chamber near the top, with screen tacked on, but it must be kept dark. JOHN WINKLER.

Springbay, Ill., May 8, 1905.

[In the early 70's the senior editor of this journal used to have hives on a loose bottom with an under entrance of the kind you describe. The advantage of such an entrance is that it can be increased or decreased by shoving the hive backward or forward; but as the majority of bee-keepers now use fast bottoms, it is no longer practicable to use that kind of entrance.—ED.]

TURNING THE ENTRANCES BACK WHEN USING THE SIBBALD NON-SWARMING PLAN.

We are running ten colonies on the Sibbald plan to test it; but we make this change: When we make a shift of hives (or jump) we turn the entrance to the back of the stand until night; then reverse to front. We think this change will make the method a good one. M. A. PAYNE & SON.

Detroit, Mich.

[From the experience we have had with the Sibbald plan, your suggestion is an important one, I should say. The weak point of the whole system is that the returning bees will find their old entrance. In order to make it work satisfactorily the hives should be turned right about face for a few hours.—ED.]

BEES KILLING DRONES.

I wish you would tell us why the bees are killing off their drones in this locality at this time of year. J. T. COUCH.

Milan, Mo., June 3, 1905.

[Drones during this past spring have been killed off largely because of the backward chilly weather and the scarcity of stores in the spring. Bees, like ourselves, are sometimes compelled to economize at every point; and when drones are killed off to any considerable extent before a honey-flow, it indicates pretty strongly a growing scarcity of stores.—ED.]

Last July I had a hive that had white-headed or bald-headed drones. The colony is now in fair condition. What is the cause?

Sparta, Wis. BERT SCHMITZ.

[The drones described are what are called "sports." We have had a good many reports of vari-colored-headed drones. The bright colors make them very pretty.—ED.]

OUR HOMES,

BY A. I. ROOT.

She hath done what she could.—MARK 14:8.

It has been my privilege to meet many noble men and women during this life which God has permitted me to live so far. Yes, more than that—it has been my privilege to know intimately, and to find right in my own immediate neighborhood, many good and noble characters. Sometimes we do not realize the true worth of these grand and noble characters until God has seen fit to take them away. This matter has been called to mind by the recent death of one who for many years had a very close connection with the growth and building-up of our business.

Some time about 1856 my father moved from the town where I was brought up, out on to a farm in the woods in Medina County, Ohio. When we began to get acquainted with the neighbors I heard frequent mention of Miss Ellen Mason. Everybody spoke of her as a very studious girl and good scholar. She did not attend the country district school where my younger brothers and sisters did, for she had mastered the common branches, and was at that time in Oberlin, Ohio, a place that was then and is now famed far and wide for educational facilities. By and by Miss Mason came home on a vacation, and it was my privilege to meet her. Although she was still in her teens, everybody seemed to agree in calling her *Miss* Mason instead of plain *Ellen* Mason, and I wondered at this somewhat; but when I became acquainted with her I understood it better. While she had a keen relish for every thing outdoors as well as for what could be learned from books, she seldom joined very much, if I am correct, in ordinary sports and gatherings, especially the boisterous gatherings. Her remarkable characteristic was that she was always exceedingly busy about something or other, usually studying up something that had heretofore escaped her. She was quite proficient, even at an early age, in drawing; and both my sister and Mrs. Root, who were nearly of an age (only 15 or 16) took drawing-lessons of Miss Mason. Some of the pictures Mrs. Root made at that time are still in our possession.

After Miss Mason graduated in Oberlin, taking a gentleman's course as well as a ladies' course, she became a teacher in Cleveland. When I started the A B C book I was anxious to learn to draw so as to help the engraver make the pictures I wanted. Miss Mason undertook to give me lessons in drawing by mail. By the way, this was an early start in the "correspondence-school" business. Well do I remember her beautiful hand-writing and excellent phraseology in her letters of instruction. But I had too much on my hands at that time to attend to it, and it was soon dropped.

When she heard what I was doing in bee culture she paid us a visit, and I do not think I ever had a visitor before or since who looked through the bee-hives with such intense and enthusiastic interest. She plied me with question after question, and remembered my replies so well that in one brief visit she had a pretty fair understanding of the mysteries of the hive. Later on, such close application indoors seemed prejudicial to her health, and she asked if she could not be of some assistance in our growing business. My impression is we talked about having her outdoors some of the time; but she was so valuable as an assistant bookkeeper and correspondent that she could not well be spared to go outdoors. About the time we came to our present location, in 1878, she became installed as head bookkeeper. When she first commenced working for me she accepted very much less wages than what she had been receiving in the public schools of Cleveland; and during all her busy life with us for eighteen or twenty years she never once even *suggested* more pay than she had been getting. On the contrary, she almost invariably objected to an advance. When the business became so large that there were a dozen or more clerks in the office, most of them under her supervision, I suggested that she ought to have about a thousand dollars a year. She said she was becoming aware that the amount of business we were doing required somebody who would be *worth* about that amount; but she very much feared *she* could not fill the requirements of the position as they ought to be filled. She did, however, manage very well for quite a number of years after that conversation.

She was all her life an exceedingly busy woman. From the moment her time was marked in the morning until it was marked off, not only every minute, but it would seem as if every second, was given entirely to the service of The A. I. Root Co. Her example in the office was worth a great deal to our business in this respect. If there was to be any talk about outside events, it was always before or after her time was marked off.

I am told that she chose the Lord Jesus Christ for her friend and helper when she was only fourteen years old; and I do not think she ever forgot that sacred pledge for one moment to the end of her life. Whenever it was necessary that somebody should be labored with about being out late nights in bad company, or getting into bad habits, Miss Mason was the very person to do it. Of course, I allude especially to our office help. Nobody was ever offended at Miss Mason's kind rebukes. Many parents were exceedingly anxious to have their children in our employ, and I hope the above remark is just as true now as it was 25 or 30 years ago.*

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* I do not intend by the above to carry the idea that Miss Mason was the *only* woman in my employ at that time who did this kind of work. There are others, both men and women; and there are at the present time through our different departments unselfish, whole-

I remember one bright-looking young girl whom Miss Mason thought we might make use of to do errands, and attend to little tasks about the office work. This girl was bright enough, but she could not bring her mind down to the business of a book-keeper's helper. She noticed everybody who came into the office; and when any member of the firm had any thing to say to somebody else she always heard it, and knew all that was said or done everywhere, except behind the ledger-desk. Miss Mason talked to her, but was finally obliged to give up, as I had done, that she was "no good" for office work. It used to be a study to me sometimes to take a look at those two—the big healthy pupil who could almost look down, *physically*, on her little teacher who was so much above her, *mentally*, morally, and spiritually, though from her childish standpoint *she* could not comprehend the difference between the two.

Miss Mason was truthful and conscientious, almost to a fault, if such a thing were possible. Let me give you an illustration or two:

One Saturday afternoon I inquired if some business transaction had been attended to. She replied that it was all fixed. After I left, she discovered she was mistaken—that it had not been attended to at all. She set to work with alacrity, and had it straightened out before night. Inasmuch as she answered me truthfully, but found out afterward it was a mistake, and as she was somewhat reluctant to have me know she had been so careless, she decided there was no particular reason why the matter should be mentioned at all. Next day, however, during the short recess between church and Sunday-school, she came to me and confessed she was mistaken when she told me the matter in question was taken care of; but she added she went right at it and fixed it up at once. Of course, I said it was all right, and that she need not have taken the trouble to mention it. The reply was something like this:

"Mr. Root, I tried to look at it in that way, but it made me uneasy all night, and my conscience has been troubling me till I have made this little confession. Having done it, I feel happy again."

Now, I do not think she feared that I might by some possibility discover that what she had told me was untrue, but it spoiled her peace of mind that night, and it could not be restored until she had made confession. Oh that we had more book-keepers in this land of ours with a conscience and disposition like that! Yes, and if we had some bankers and business men whose conscience and whose fear of God were such that they could not *rest* until they had made right even a statement they made entirely by mistake, what a world of trouble would be saved!

After almost twenty years of close application to the book-keeping work in our office, nature began to make a little protest. We kept double entry, and the books were made to balance to a copper the first of every month. Our customers were all over the world, and our dealings were not only with thousands, but with at least a hundred thousand, and both she and myself were getting old. By the way, friends, our prayer-meeting topic a few weeks ago was entitled "Growing Old Gracefully." May be, in concluding the remarks of this Home Paper I may be able to suggest to some of you the *way* to grow old gracefully and to keep good-natured and happy. Miss Mason and I both had some lessons to learn; but, may God be praised, Christ Jesus was and is not only abundantly able but willing to teach these lessons. Sometimes there was neglect or mistakes; and while it was my office to point them out and to plan to avoid such things in the future, it was not exactly my fashion to do it in as kind and pleasant a way as some people might have done it—say the good friend of whom I have been speaking. At one time I censured pretty severely something that I pronounced inexcusable carelessness. She stoutly declared it was not her fault, but I insisted that it was, either directly or indirectly. She went home feeling a good deal hurt, and perhaps a little bit out of a Christian frame of mind. In the morning she came back to her work fresh and bright, and with a smiling face. I was a little surprised, for I expected that the disagreement of the day before might come up; but she soon explained why she looked and felt bright and hopeful. She took up the old Bible, that has been for so many years on my desk, and, turning over its soiled pages, she came to I. Peter 2:20. May be it will do you good to read it, friends:

> For what glory is it if, when ye be buffeted for your faults, ye shall take it patiently? but if, when ye do well, and suffer for it, ye take it patiently, this is acceptable with God.

She said in substance, "Mr. Root, when I went home last night I was feeling very unkindly toward you because you persisted in blaming me for what I still think was not my fault. But I finally turned to my Bible, as I always do before I retire, and came across these wonderful words. I know I make mistakes, and I know I am often at fault, and I have always felt willing to be reproved, when I was to blame; but the Bible says, as you will notice, that if, when you are doing the very best you know how, you suffer for it, there is some credit to you if you take it patiently, for such a spirit is acceptable with God. Now, whether I am to blame or not I am going to take it pleasantly and patiently, with God's help."

There, friends, how many people do you know in this world who go to their Bible in time of such troubles, and who, after having received counsel from such a source, *put it in practice* as did our friend above?

After this event other things came up that we could not either of us exactly explain in our work. When the book-keeper declared it was not her fault, knowing how truthful and conscientious she was I took

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souled, devoted Christians who try day by day to benefit, help, and lift up their fellow-men.

her word for it. But her overtasked mental powers were giving indications that they were not sufficient for the increasing strain upon them, even when neither she nor I was expecting it. Later on, a certain transaction had been neglected. We found it had been dropped when partly finished, but, for some reason unknown, carried no further. She declared she had had nothing to do with it. I insisted it could have been no one else who started it. In a puzzled way I began turning over the pages of what we called then our computation-book.*

I found some figures that represented the exact transaction I have mentioned. When I showed that sheet to her, she was obliged to admit it was her writing; but she was as much astonished and perplexed as I was when she said she could not recall any thing about having made said figures. There I was, bearing down hard on the poor woman when she was really as innocent of any thing wrong as I was myself. It was nature's protest against overwork, or work that required so much mental strain. I do not think it occurred to either of us at the time that the growing business would pretty soon have to be turned over to younger brains and muscles; but as we were both professing Christians, and praying for strength and guidance day by day, it was not so very hard for us to accept and learn the lesson that many elderly people are obliged to accept and learn. Later on, my health began to fail; and although my son and son-in-law had not yet finished the course they planned in college, they came home and took charge of the business. The boys, fresh from college training, with the vigor of young manhood, soon discovered, by comparing notes with other business houses, that my methods were not up with the times; and it was quite a hard task for me to let go the reins of business and stand to one side. God in his great mercy suggested "the cabin in the woods" at about this crisis. My memory began to fail like that of the bookkeeper, perhaps because it was no longer able to grasp the thousands and I might almost say millions of things to be remembered. After I had been a few months at the cabin in the woods, with nothing to look after outside of the forty acres, my memory became just as good as it ever was.

By the way, I forgot to say in the proper place that Miss Mason had all her life a most remarkable memory, and she was exceedingly accurate. Whatever she did was done thoroughly and well. She never learned to use a typewriter—at least not very much. It was not particularly needed in her work; but her beautiful plain writing in letters and figures I shall always remember. No matter how hurried she was her writing was always plain.

Like myself, she tried some other occupation, thinking it might be beneficial as a change. A few months ago she came home to Medina, giving up work. Recently her health began failing very rapidly. The physician she consulted did not seem to be able to tell just what the matter was. I urged that she go to Cleveland and find some expert who could locate the trouble. I shall always remember the pleasant smile she gave me as she suggested her work was probably done, and that there was no particular reason why she should live much longer. She probably knew death was near, although I did not.

I have already given you several wholesome morals to my talk, but there is just one more left. If this good woman who was all her life a blessing and a help to humanity had worked fewer hours, especially when she was past fifty, and had spent more time outdoors, she might have been a blessing to humanity even yet, and for many years to come. God in his great mercy suggested to me the cabin in the woods. She had means enough to enable here to drop work; but the characteristic of her life for being busy was so strong that she accepted a position to take charge of a home for elderly women. The pay was pretty good, I believe, and she thought it would be a change for her, even if it was still a burden with many cares.

Miss Mason enjoyed excellent health almost all of her life. I think she once told me that ten dollars would probably cover all of her expenses for doctors' bills. Well, somebody told me that in this old ladies' home she could not have the abundance of fresh air we always have here in our office; that the old people could not bear the least bit of draft or breeze, so she was kept a great part of the time in close warm rooms. I feel like adding right here that I believe old people should be fenced off by themselves, so that their poorly aired apartments will not poison the children and younger folks; but I think I will change it and say old people who can not bear a little breeze should be fenced off from other folks.

Now, about growing old gracefully. I hope I can persuade young people that God has made ample provision for people who are growing old. It is his will that they should be as bright and joyous as the children; but in order to be this it is often necessary that they should stand out of the way, and do it gracefully. Even if the young people do run things into the ground at the start, let them do it. The loss of a few dollars or of a few cents is not the worst calamity that can happen by any means. I do not mean that old people should be "chloroformed" or any thing of that sort—God forbid! and the younger people do not mean any thing of that sort either. The old bees in the hive have a necessary part of the work to do, and so it is with humanity. Nothing can take the places of these older ones with ripe experience. This ripe experience is just as much needed as is modern machinery; but we want to pray for God's grace to help us to adjust ourselves to our respective places good-naturedly and *gracefully.*

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* One of my regulations when I had charge of the business was that every clerk in the office should keep a blank book and put every figure or mark of a pencil in that book, dating all such marking or figuring for each day's work. Lots of the clerks scolded, because they thought it was just a queer notion of mine. But sometimes in a big office it is exceedingly important to find a small scrap of paper on which somebody has been marking or figuring. As an illustration:

We shipped a lot of maple sugar to a firm, and charged them only half the value. I tried to find out who made such a blunder, but all the clerks disclaimed responsibility. Finally a scrap of paper with some pencil-marks showed the blunder in multiplying. The new clerk who made it had to acknowledge her own figures.

AUTOMOBILE DRIVERS WHO FEAR NEITHER GOD, MAN, NOR—ANYBODY ELSE.

The Cleveland *Leader* has just informed us of an auto driver who turned out of the way of a trolley car, and in doing so ran into a man who was driving a young high-spirited horse. The man was thrown out on the curbstone, badly injured. The horse ran away, injuring several other people; but the driver pushed ahead, never stopping to look back or inquire as to the damage he had done, and succeeded in getting away before anybody caught sight of the number on his car—if he had one. Now, this thing has happened before—at least a few times any way; and I wish that a law might be passed inflicting a severe penalty for running away from an accident of this kind without stopping to inquire or helping to make good the damage. Individually I should consider the penitentiary none too severe for such an offense. When bicycles began making trouble a few years ago, there were a few who were cowardly enough to get out of sight as soon as possible, if they could do so. Yes, and I have heard some people defend such a course; but the man who runs away from an accident, whether he caused it or not, is much in the same category as the man who runs away when something has been stolen or somebody has been robbed. If there are no laws to punish such cowardly tricks, by all means let us have them. Nobody who makes any pretense to being called a *man* should refuse to face the music and take the consequences, especially at a time when he may have done damage or injury to some of his fellow-men; and it should be no excuse for him to say that he did not mean to do the mischief.

AUTOMOBILES ON HIGHWAYS.

So long as we continue to publish kind words now and then, to be consistent we must also give place to criticisms. The following is one of them:

> *A. I. Root Co.:*—Please find enclosed 25 cts. to pay for what I owe on GLEANINGS. Stop my subscription. I have taken GLEANINGS for years, and like it well except for just one thing. I am altogether out of sympathy with A. I. Root's love for automobiles. I think this rich man's plaything, and curse to non-users, should be prohibited by law from using roads built for public highways. A. E. PECK.
>
> Acworth, N. H., May 25.

Friend P., I do not know but I shall have to remind you of the time when Stevenson was projecting the first railway in England. He was told by bright and intelligent people that his scheme was impracticable, as it would frighten the horses and cattle along the road so that they would jump over the fences, and run away and bring calamity everywhere. One old farmer said, "And suppose, now, Mr. Stevenson, my coo should get in front of your engine." His reply was, "Thot w'd be bad for th' coo." But he had faith to foresee that the cattle would be of small account compared with the good that would be done by steam railways. And, my dear friend, I have faith to believe that, in a very short time, you may see your mistake and conclude to renew your subscription to GLEANINGS. It seems the steam railways did not trouble the horses and cattle in the least; but they *did* make it possible to carry the necessaries of life not only everywhere, but at such low prices that starvation and destitution are now almost unknown wherever the locomotive has made its way. A recent number of the Chicago *Advance* informs us that there are streets in Chicago where the automobiles, including those that are used to carry merchandise, largely outnumber the horse-drawn vehicles. Gasoline is fast demonstrating that it is a cheaper and safer motor than horse flesh. Surely you would not want the editor of GLEANINGS to be behind the times in this matter of cheap and safe transportation.

Another thing, automobiles are already used to some extent by bee-keepers, especially those who have out-apiaries; and they are very soon going to be used much more for this very purpose. You can go among the hives with them in a way you would not want to do with a horse; and during the busy season they are a great saving of time, especially if your apiaries are as far apart as they should be for the best results.

Temperance.

BUSINESS OPPORTUNITIES IN FOREIGN COUNTRIES.

From a government bulletin entitled "Department of Commerce and Labor, No. 2266," issued March 4, 1905, I have decided to make some extracts. In discussing the different ways in which our foreign trade may be increased and extended with foreign countries, the consul speaks of increasing our export of American intoxicating liquors.

> CHINESE LIQUOR CONSUMPTION.
>
> There are reasons to believe that American liquor interests, especially the wine-producers of California, are not paying the attention to the trade of China which it deserves. Generally speaking, the imports of wine, beer, porter, and spirits into China are rapidly increasing, although the past year was not a very favorable one in some respects. It is also true, apparently, that American trade in this line is increasing, but Americans do not have the share they ought to have.
>
> The unusual amount of native wines imported in 1902 was probably due to the destruction of stocks in the great fire which visited Amoy that season.
>
> Generally speaking, the coast cities use foreign spirituous, vinous, and malt products in about the proportions indicated. American beer is popular, but some German and considerable Danish beer are imported. Whiskies are largely of English and Scotch origin. The wines represent almost every nation that produces wine, but the European brands very largely predominate. *I believe that Americans can develop a good trade here in whiskies, can increase their sales of beer greatly, and*

> *that they can especially better their trade in wines.* The consumers include not only the large and increasing foreign population, but the wealthier classes of Chinese who are taking to foreign beverages. When a Chinese official gives a dinner nowadays his table will show an array of foreign wines which speaks volumes with respect to future trade. The Chinese people, as a whole, are becoming more and more prosperous every year, and their ability to buy such products is constantly increasing. One indication of this is apparent in their trade in native wines. I see no reason why foreign goods should not replace such native products to an indefinite extent. California wines particularly ought to have the cream of the market here, and I believe that a little pushing of the trade, by personal representation or otherwise, would have immediate and gratifying results. The success due to efforts of agents for American firms so far indicates the great extent of the field yet untouched. The demand for wines is for sherry, claret, hock, champagnes, and port, in the order named.
>
> GEORGE E. ANDERSON, CONSUL.
>
> Amoy, China, March 9, 1905.

The italics in the above report are my own. I wonder if Consul Anderson has ever read that little text in the Bible that says, "What shall it profit a man if he shall gain the whole world and lose his own soul?" If he has, I wish he would substitute for the word *man* the word *nation.* And, by the way, is it true that the United States of America picks out somebody for consul to foreign nations (such as the Chinese, for instance) who seems to think it incumbent on him to use his official influence to introduce American whisky and beer into foreign countries where these things are as yet unknown? Is this sort of thing the spirit and animus of our boasted nation, the land of the free and the home of the brave—a nation that loudly proclaims to the rest of the world on its coins, "In God we trust"? I do not know exactly where the responsibility rests; but these few words are dictated with a prayer that this little protest in our bee-journal may, through God's providence, reach somebody who has power to suggest that we as a nation select a different stripe of men to send on such a mission, especially to what we call "heathen" nations. Perhaps this wonderful new people who are coming so rapidly to the front (the Japanese) may have both ability and inclination to suggest a halt in pushing the sale of intoxicating liquors, opium, etc., among foreign nations where *they do not want them.* If so, may the Holy Spirit direct and encourage the Japanese.

DUFFY'S MALT WHISKY.

We make the following extracts from a Duffy malt-whisky advertisement in the Anaconda *Standard,* Montana:

> "Thanks to Duffy's, I am able to be out every day, and take quite extensive tramps in the severest weather."
>
> On being interviewed, Mr. Cronk said: "For many years Duffy's pure malt whisky has been my only medicine. I take a dessert-spoonful of the tonic three times a day with my meals, and when I go to bed. Although we have severe weather where we live, I am able to be out every day, and I take quite extended tramps. I am very thankful to Duffy's, for it gives me a good appetite, and keeps me strong and well in my old age."
>
> Mrs. Sarah A. Rowley, his daughter, writes that, in spite of the fact that the grand old man is 105 years old, he is keen in mind and rugged in health, thanks to Duffy's pure malt whisky.

After the above was in print the matter was referred to Mrs. Sarah Rowley, who is quoted, and here is a copy of the letter she writes to the editor of the *New Voice:*

> *Mr. Johnson:*—The statement that my father, Hiram Cronk, was a user of Duffy's malt whisky is false. He never drank one drop of it in his life. My father never gave them this testimonial. SARAH ROWLEY.
>
> Ava, N. Y., May 24.

Mr. Cronk died May 13, at the age of 105. In a former letter to the *New Voice* his daughter says, "My father has not been out of the house in five years, and is very feeble;" and yet the Duffy people claim he told their agent that he took long walks every day. His long life has been extensively commented on by the press. One of the New York papers furnishes the following, published some time before Mr. Cronk's death:

> Mr. Cronk is a total abstainer from intoxicants and tobacco. Longevity seems to have been common in his family, several of his brothers having lived to be over ninety years of age. His sturdy frame and his way of living have increased his lease on life, and he bids fair to live to reach his hundred and fifth milestone.

You see that these Duffy people got wind of the fact that there was a man living who was 105 years old. I do not know whether they really got some one to interview Mr. Cronk and his daughter, Mrs. Rowley, or not. You can see what they say about it in their advertisements, and then what Mrs. Rowley *really* says when appealed to.

If nothing but publicity will kill out this kind of work to make good temperate people intemperate, let all the friends of temperance see to it that they get the needful publicity. If you can find a paper containing their advertisement, cut this out and send it to the editor, and insist that he stop accepting advertisements from such a gang.

GOVERNOR FOLK AND THE SALOON-KEEPERS OF ST. LOUIS.

All honor to Governor Folk, of Missouri! The following we take great pleasure in clipping from the *Weekly Sentinel,* Macomb, Ill. It indicates that there are some good men besides our beloved President who are determined on the enforcement of law. Here is what Governor Folk says in regard to the saloon-keepers of St. Louis:

> The dramshops will be taught that they are not above the law, even if it takes the military power of the State to do it. They will be protected in every right the law accords to them, but they must obey the law.
>
> The law permits the dramshops six days in the week; and any one who exceeds that is an outlaw. When a saloon-keeper opens his dramshop on Sunday he does so in defiance of the law. When he sells intoxicants he deliberately insults the majesty of the State.
>
> They say this law is a blue law. Any law seems blue to the individual who has a selfish motive in breaking it. If they continue to violate it they will find this law will assume a livelier hue. It is the law of the great State of Missouri; that is enough. Furthermore, it is a law in the interest of good government to prevent the enormous amount of crime that comes out of the Sunday saloon. They say the law is a dead law. Let them ignore it, and they will receive a shock that will teach them it is very much alive. If it has been more honored in the breach than in the observance, great is the pity; but that is true of the bribery statute. That, too, was denounced as a blue law and as a dead law, but experience shows it to be neither.
>
> My duty is to enforce the law, and I intend to do it the best I can throughout the State. The dramshops must either respect the laws of this State or they will have to show they are stronger than the State.

HIGH PRESSURE GARDENING

BY A. I. ROOT.

THE COMB-HONEY LIES, AND A PARALLEL CASE IN REGARD TO CABBAGES.

I suppose all our readers have seen more or less in the papers about poisonous snakes or worms in cabbages. The agricultural periodicals have been exceedingly busy in trying to put down the lie, ever since it started; but it turned out very much like the lies about manufactured comb honey. The falsehood was copied, and traveled a thousand leagues ere the truth was able to overtake it, providing it did *finally* overtake it at all. On the 6th of June the Department of Agriculture issued a leaflet relative to the cabbage hair-worm. No person has ever been killed or injured by eating worms in cabbages. The Department finally succeeded, however, in tracing the statement down to town, county, and State; but the postmaster in that locality said no such thing had occurred there, neither did any such people live in that place. The hair-worm that is often found in cabbages is no more poisonous than angleworms, or skippers in cheese. Most thorough tests were made by feeding these "cabbage-snakes," both cooked and uncooked, to rabbits, guinea pigs, etc., and they were not harmed in the least. Notwithstanding this, so many people have gotten the notion it is not safe to eat cabbage that thousands of dollars' worth of good cabbages were allowed to rot. The bulletin in question says, "From data at hand it can be truthfully said that thousands of cabbage-growers incurred severe losses on account of the unfortunate 'scare' due to the unwise circulation of the veriest rumors." All this is on account of a senseless scare. I wonder if we can not have a law passed making editors *responsible* for the propagation of damaging slanders like the two before us.

ALFALFA IN OHIO.

Inasmuch as alfalfa is now getting to be one of the main sources of honey, and of a honey, too, that in quality is almost equal to that from white clover, if not quite, it behooves us to give the matter considerable space. Accordingly I take pleasure in clipping the following from the *Rural New-Yorker:*

> There are many farmers who can not understand yet why we keep talking about alfalfa. Not having grown the crop or seen it growing they do not realize what it would mean to them. We felt indifferent about it at one time; but since seeing the small field at the New Jersey Experiment Station and the large fields around Syracuse, N. Y., we realize the great possibilities of this plant. The best way to convert a man is to take him right into the field where the last crop of alfalfa is growing, and then into the barn, where the two previous crops are bulging the boards off the sides. The next best argument is to have some reliable farmer tell what alfalfa has done for him. John M. Jamison, of Ohio, is a good farmer, and conservative in his statements. This is what he says:
>
> "Last year here the clover crop was poor, and most of it saved in poor condition, while alfalfa did finely. I harvested mine in good shape, cutting it four times. There was no clover on the farm to cut. I have eleven acres of alfalfa. It would have taken three or four times the same area of the best clover in this section to give the same amount of hay; clover grown on the same kind of land. I had an abundance of corn and good fodder, but without the alfalfa or its equivalent in clover hay or bran, I could not fill my lots with feeding lambs. The clover hay could not have been bought, and to buy the equivalent of the alfalfa in bran would have cost at least $500, which would have taken a share in the profits of the lamb-feeding. Where the clover has one chance to make a crop, alfalfa has three."
>
> Mr. Jamison is putting extra tile into his land at an expense of $7.00 an acre in order to fit it for alfalfa. A fruit-grower or gardener may say: "This may be all very well for a stock-grower or large farmer, but alfalfa is not for me." There is where he makes his mistake. We must all keep some stock, and the more manure we can make without too great an expense the better off we are. With two or three acres well set in alfalfa we can cut hay enough for all our stock, cut down the feed bills, and save a large amount of land which would be needed if we attempted to grow any other fodder crop. By all means hang to alfalfa until you get it.

You can get a stand of alfalfa almost anywhere if you take sufficient pains; and the first thing to do is to have it well underdrained, as the *Rural* hints; then get your ground in good condition with stable manure, turning under red clover, and possibly by the use of commercial fertilizer. In order to get a good clear stand free from weeds, I think I would put the alfalfa in drills. It is much easier to get out the weeds when sown in this way. Be sure you get rid of docks and every thing of that sort before you start in. Our folks put in a piece of alfalfa when I was up in Michigan, and they made a bad choice; first, because they took creek-bottom land where in some places there was only a foot of soil above the shale. In the second place, the piece is badly infested with docks. We tried digging them out, but afterward decided we had better try again by putting our alfalfa on well-drained upland of good quality, and fairly free from bad weeds.

REPAIRING RUBBER TIRES.

Some of the friends may think this out of place in a bee journal; but knowing how many bee-keepers use a bicycle in their work, I think it will not be much out of place here:

> Some time ago I noticed in GLEANINGS that you were anxious to learn of some quick and satisfactory method for repairing the tires on your automobile. I can tell you how I repair my bicycle tires, which, after years of experimenting, I find to be quite satisfactory. I use the Dunlop, and for a hole in the casing I take a piece of old Dunlop tire, fit it *over* the hole, and sew it (with awl and waxed thread) along the edge on each side near the wire. If the hole is large, fill it with cotton batting before inserting the inner tube. It is best to put the patch on the outside rather than inside the casing, as it runs smoother, and when worn can be replaced; and if on inside, the hole will soon wear larger. Closed tires can also be fixed the same way by slitting the casing enough to allow for sewing. J. H. BURNS.
>
> St. Marys, Ont., Can., May 10.

We have also used leather sewed over a break in the tire. But the best arrangement for a quick repair with an automobile is a patch of prepared rawhide fastened with a rawhide lacer. This can be put on in a few minutes, and will last for several weeks if used with care.

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The "Handy" concrete building-block machine makes them. Price, complete, $50.00, f o. b. Medina.

Write for descriptive circular and price list.

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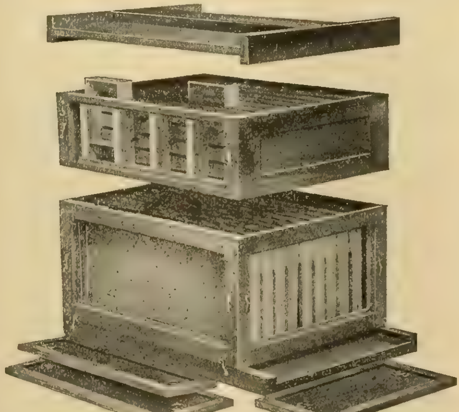
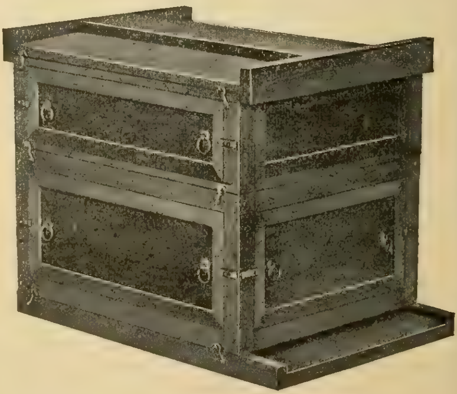
To meet the increasing demand for a moderate-priced Observatory Hive, for use in schools and homes, we have decided to manufacture the style illustrated herewith. It is identical with our regular hive, with the exception of the body and super sides, which are fitted with glass, together with wooden shutters for closing the hive while not observing. This hive permits the keeping of a regular colony of bees in a normal condition so that every phase of bee-keeping may be studied.





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One-frame hive, with case and super, in flat	1 50
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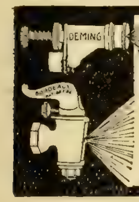

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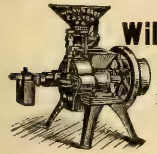
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SPRAY PUMPS

MYERS

Glass Valve

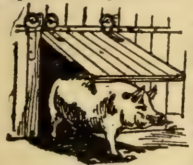
Double-acting, Lift, Tank and Spray **PUMPS**

Store Ladders, Etc.

HAY TOOLS of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, Ohio.



Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

It Feels Good

on your face and your face always feels soft and smooth, if you use

WILLIAMS' SHAVING SOAP

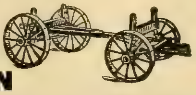
Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

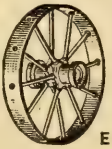
The J. B. Williams Co., Glastonbury, Conn.

JULY BLOODED STOCK

will give the champions of Duroc-Jersey swine a hearing. The entire number will bristle with money-making articles. Able contributors will consider the practical value of this breed; how to make money with it. Subscribe now. 25c a year.

Blooded Stock, Box 218, Oxford, Pa.





FARMERS HANDY WAGON

Low steel wheels, wide tires, make loading and handling easier. We furnish **Steel Wheels** to fit any axle, to carry any load. Straight or staggered spokes. Catalogue **free.**

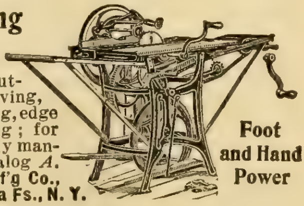
EMPIRE MFG. CO., Box 91 F Quincy, Ill.

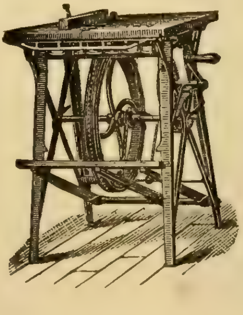
Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A*.

The Seneca Falls M'f'g Co., 44 Water St., Seneca Fs., N. Y.

Foot and Hand Power





BARNES'

Hand and Foot Power Machinery.

This cut represents our combined circular saw, which is made for beekeeper's use in the construction of their hives, sections, boxes, etc., etc.

Machines on Trial.

Send for illustrated catalog and prices. Address

W. F. & Jno. Barnes Co., 545 Ruby St., Rockford, : Illinois.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange 4000 3⅝x5x1½ No. 1 sections for honey-extractor to hold L. frames.
Wm. H. Bright, Mazeppa, Minn.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. Swan, Centralia, Kansas.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange White Wyandotte eggs or stock, for beeswax, old combs, or solar refuse. Small utility flock for sale cheap. Also 12 S. C. B. Leghorn hens. H. E. Crowther, No. Kingsville, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. Hagen, 1632 Blake St., Denver, Col.

WANTED.—To exchange poultry and bees for any thing in the music line. I am a dealer in pianos, organs, and general musical merchandise, including sheet music. F. W. Walter, Staunton, Va.

Help Wanted.

WANTED.—At once, a man to work with bees. State age, experience, and wages.
W. Hickox, Berthoud, Colo.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

For Sale.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. Reeves, Perch River, N. Y.

For Sale.—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. Jno. M. Wheeler, Winchester, Ky.

For Sale.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. Gray, Redwood Falls, Minn.

For Sale.—My entire apiary of bees—about 40 colonies, extractor, Given foundation-press, and all my bee-fixtures. Come and look them over.
H. C. Gilson, Burr Oak, Mich.

For Sale.—Cheap, eight 8-frame hives of bees and supers. A. H. Neidenberger, Pleasant Hill, Mo.

For Sale.—A few dozen cases of 60-lb. cans; good as new. G. L. Buchanan, Holliday's Cove, W. Va.

For Sale.—A few strong colonies of Italian bees with tested or untested queens; no disease.
J. F. Sempers, Aikin, Md.

For Sale.—One hundred cases, 60-lb. cans, practically new, at 30 cts. per case; 45 barrels at 35 cts. each
H. C. Ahlers, R. R. No. 1, West Bend, Wis.

For Sale.—First-class, second-hand, two-story chaff and single-wall hives at half price of new ones.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

For Sale.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
The Hyde Bee Co., Floresville, Texas.

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. Hyatt, Shenandoah, Page Co., Iowa.

For Sale.—The busy man's method of rearing the best queens; saves brood, time, and patience; rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere.
E. H. Dewey, Great Barrington, Mass.

For Sale.—On account of departure, 150 two-story eight-frame colonies; most frames wired; Italians and hybrids; sold cheap if taken in the yards; ideal location and fast-growing retail market; one failure in 20 years.
G. P. Howell, 6101 Dauphin St., New Orleans, La.

For Sale.—Flood No. 2, June 8 and 9, 1905; 33,000 1⅞ and 7-to-foot sections wet; No. 1 at $3.50 per M., and No. 2 at $3.00. If folded up soon they will be as good as any. Satisfaction guaranteed. Big stock of dry goods. Can make immediate shipment of any thing you want in a bee line.
A. G. Woodman Co., Grand Rapids, Mich.

For Sale.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. Hildreth & Segelken,
82-84 Murray St., New York City.

For Sale.—Fifty new nine-frame L. hives, nailed and painted, staple-spaced frames, $1.00 each; 50 new T supers for same, for 4½-inch square sections, 25 cts. each; Doolittle solar wax-extractor, good order, $1.50; Racine 120-egg incubator, used but once, $10.00; Racine 100-chick brooder, never used, $10.00.
J. D. Bixby, R. F. D. No. 2, Altamont, N. Y.

For Sale.—Two and one-half acres of land, nicely covered with mesquite trees; good five-room house; 3000 yards steel tank full of water from the roof; located 400 yards from S. A. & A. P. depot, 50 miles south of San Antonio; house insured for $500; just the place for a bee-keeper or queen-breeder. To be sold at a bargain. Write or call quick, as this will be sold cheap.
Udo Toepperwein,
1322 S. Flores St., San Antonio, Texas.

If You Want the Bee-book
that "covers the whole apicultural field more completely than any other published," send $1.20 to :: ::
Prof. A. J. Cook, Claremont, Calif.
FOR HIS
"Bee-Keepers' Guide"
Liberal Discount to the Trade.

DANZENBAKER HIVE.

"Facts About Bees," a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. **Send for it.**

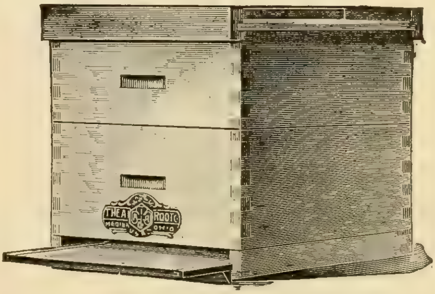
THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.
You can produce better-looking honey.

QUANTITY.
You can produce more of it.

PRICE.
You can get more per pound for it.



Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

Union Bridge, Md., Feb. 9, 1904.
The A. I. Root Co., Medina, O.

Gentlemen:—I saw in a recent issue of your paper that you have a department called "Reports Encouraging." I shall send you my report.

I use the Danzenbaker hive and will give you report of the same, as the few Dovetailed hives that I use do not compare at all with the Danzenbaker. One colony gave me over one hundred pounds No. 1 white honey, and the rest averaged about sixty, with an increase by natural swarming of one hundred per cent. A friend of mine who uses all sorts and kinds of hives in his apiary succeeded in making scarcely enough honey to pay for the foundation used in the sections. This was about two miles from my apiary. Long live the Danzenbaker hive. It is just the thing for this locality.

Yours truly,
J. B. Hollopeter.

⁂

Mallet Creek, O., Sept. 25, 1902.

I now have 250 colonies of bees, of which 170 are in Danzenbaker hives, and shall have all my bees in Danzenbaker hives next spring. During the past poor season, 30 or 40 of the colonies in the Danzenbaker hives gave over 100 pounds surplus. On the average I get more than double the amount of honey from these colonies that I do from those in the old chaff hives. With a seven-inch telescope cover, the Danzenbaker hive winters the bees better than the chaff hives. Vernon Burt.

I have used both square and tall sections in all my apiaries five years, and I know from practical experience that it will pay to discard the 4¼ sections, and use only 4x5 sections, and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hives. I have made *more money* this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made a ton of honey. When it comes to sales, I get more for the 4x5 sections, and have no work in cleaning them. I ship them as I take them from the super. This is not the case with the 4¼ section. I make honey to sell, and anything that sells the best, and for the most money, is what I want out of the bee-business. S. D. Matthews.

In Gleanings, p. 931, Dec. 15, 1899.

⁂

Rock Valley, N. Y., Feb. 22, 1901.

My bees gathered no surplus after July 1. I had only 1200 pounds, but I obtained a fancy price—15½ for "Fancy" and No. 1 white, and 14½ for No. 2 here at my station for all the Danzenbaker 4x5 plain sections used on our hives, while I got only 14 and 13 cents per pound for the 4¼x4¼ square sections, and I consider that much difference is worth looking after—don't you? The Danzenbaker hives doubled up, two brood-chambers, are in fine condition, even better than my double-walled hives. I intend to build a bee-cellar and work off my double-walled hives as fast as I can, and get the Danzenbaker hives. Very truly yours, J. L. Haight

The A. I. ROOT CO., MEDINA, OHIO.

PRICES OF QUEENS	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO TEX.

2 FRAME NUCLEI FOR $2

WITH CHOICE UNTESTED QUEEN FREE.

All queens reared by the most approved methods. Nothing but the best imported Italian breeders used. Fifteen years of practical bee culture has taught me the value of good queens, and the best method of rearing them. Bees on L. frames. No orders filled before July 1st. :: :: :: ::

JAMES W. BAIN, MARION, OHIO.

Bees, Queens, and Nuclei

From the best stock. We carry a full line of bee-keepers' supplies also. 64-page catalog sent free.

J. M. Jenkins,
Wetumpka, Ala.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."
MALAN BROTHERS, Luserna, San Giovanni, ITALY.

PURE = ITALIAN = QUEENS

Highest award at St. Louis, 1904.

Anthony Biaggi,
Pedeville, - near Bellinzona, - Italian Switzerland.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c —after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.
CHAS. KOEPPEN, Fredericksburg Va.

Italian Queens!

Carniolans mated to Italian drones. Select untested, 75c; 3 for $2.00. Tested, $1.00; 6 for $5.00.
George W. Barnes, 138 N. Pleasant St., Norwalk, Ohio.

DEWEY HARDY HONEY-GATHERERS

Little later reared, but just a little larger, stronger, and hardier. These queens are produced under the swarming impulse by the Busy Man's Method. See ad. elsewhere. Send for free card, "Can I Control Swarming?" Untested, $1; 6, $5. E. H. Dewey, Gt. Barrington, Mass.

"The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer

W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

Agents, Agents!

Anybody Can Do It.

We want good live representatives to take orders for "Peuro or Pearl" medallions; entirely new; sell at sight; big money; exclusive territory given; agents' supplies; novelties up to date. Write at once. . .

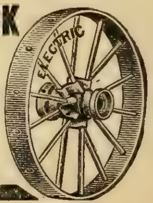
Universal Manufacturing Comp'ny
Pittsburg, Pa.

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.
Electric Wheel Co. Bx95, Quincy, Ill.



Q·U·E·E·N·S

AND BEES

Golden or Leather Colored Italian, the best that money can buy anywhere.
THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

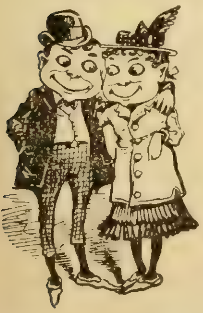
Prices before July 1	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	.....	.....
Straight five-band breeders	6 00	.....	.....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	.....
4 frames brood, 4 frs. foundation	5 00	25 00	.....

Address all orders to

Quirin-the-Queen-Breeder, Bellevue, Ohio.

Doolittle's

Partner selecting a queen. If you want the full particulars send for their circular, giving a description of their fine northern-bred . . .



Italian Queens.

If you want honey-gatherers you need look no further. . We are now ready to send out .· .·

Choice Breeders.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

PROVIDENCE QUEENS
PROVE THEIR QUALITIES

To be unsurpassed. .· .·
Reared by an exclusive method.
.· .· Circular on request.

LAWRENCE C. MILLER,
P. O. Box 1113G, Providence, R. I.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer, Ventura, Calif.

Queens

California

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

If You Want

Lewis' Popular Bee-supplies

By Return Freight or Express,

—Send to—

York Honey and Bee Supply Company

LONG DISTANCE PHONE---NORTH 1559.

141-143 Ontario St., Chicago, Ill.

{Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells St. Cable Line from center of city to Ontario St.}

H. M. ARND, Manager.

A Full Line of Bee-supplies on Hand,

—Consisting of—

Hives, Sections, Shipping-cases

—everything used by the practical up-to-date bee-keeper. ❦ Catalog and prices on honey on application. ❦ If you want good goods at factory prices, and prompt shipment, send your orders. or call on us. ❦ ❦ BEESWAX WANTED—28 cents cash, or 30 cents when taking bee-supplies in exchange—delivered here.

BINGHAM Original Direct Draft CLEAN **Bee Smokers**

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder

Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS Have These Latest Improvements.

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case),	$8 50
In Chaff hives	9 50
Bees in any style of hive desired.	
Italian queens, tested,	$1 25
Italian queens, untested,	1 00
The best veils	40

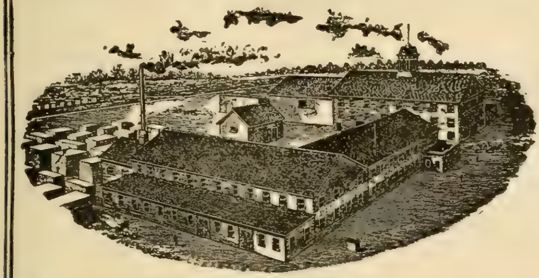
Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. **A. W. Swan & Co., Centralia, Kan.**

FENCE STRONGEST MADE. Bull-strong chicken-tight. Sold to the Farmer at Wholesale Prices. Fully warranted. Catalog free
COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana.

WANTED.—Buyers for Mory's patent roach-traps; mail, 30c each. WM. MORY, Covington, Ky.



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

BEE - SUPPLIES !

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

DISCOUNTS FOR EARLY ORDERS.

DEALERS IN OUR GOODS.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.
Southwestern Bee Co., San Antonio, Tex.

Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, - : - Augusta, Wis.

WISCONSIN
BASSWOOD
FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

BEST
Bee-supplies

Lewis Goods at Factory Prices

Root's smokers and extractors, Dadant's comb foundation, Bingham smokers. We sell hives arranged with the famous **Colorado Cover,** the best cover ever put on a bee-hive. Complete hives cost you no more with this cover than with other covers, but they are better.

Where Do You Live? Let us quote prices on what you want, with freight paid to your station. We ship each year to every State east of the Rocky Mountains. Let us ship to you. **A Porter Bee-escape Free** with first order if you tell us where you saw this ad. Eighty-eight-page catalog free. Send at once.

C. M. SCOTT & CO.
1006 E. Washington St.
Indianapolis : Indiana

FREE! A Subscription to Bee Journal One Year with order of $10.00 or over. Cheapest place in the United States to buy your supplies.

One and one-half story Hive, $1.00; Sections, Hives, Berry Baskets and Crates by the Car Load

Wholesale and retail. Send for free list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

Hoosier-Italian Queens---By Return Mail.

Untested Queen	$ .75
Select Untested Queen	1.00
Tested Queen	1.00
Select Tested Queen	2.00
Select Breeding Queen	5.00
Best Imported Queen	5.00
Fair Imported Queen	3.00

North Tonawanda, N. Y., June 6, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I must write you pertaining to the nuclei you sent me. I put them in a hive the day I got them, and to-day they have it crowded with bees and brood. They are the finest bees that I have ever seen, both as to color and to peaceableness, and I shall stock up with them. Lots of bee men have been here to see them. Use my name to back them if you wish, as nothing could be finer. A. F. EILENBERGER.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

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Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

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The W. T. Falconer Mfg. Company,
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W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

SPECIAL NOTICE
Special Notices
By Our Business Manager

BEESWAX MARKET.

The market price of wax is very easy for this time of year, and the price we are paying at present we will not continue after July 1. For wax arriving before July 1 we will pay 28 cts. cash, 30 in trade. After that date, 2 cts. per pound less.

STANLEY THREE-FRAME REVERSIBLE EXTRACTOR.

We have recently taken in trade an old-style Stanley automatic honey-extractor for three L. frames, made to take crank on top end of shaft, without gear. The can is of heavy tin, and the machine sold originally at $15.00. We offer this one at $5.00.

GLEANINGS FAMILY GROWING.

We printed 21,000 copies of June 1st issue of Gleanings, and they are all gone to names on our subscription list, and not enough to supply calls for this issue. Only a few months ago we were printing only 20,000 copies, and using some hundreds of these as sample copies. We shall now have to advance our stake to 23,000 copies to furnish enough for the list, and some extra to supply the calls for sample copies. No wonder Gleanings is proving so valuable as an advertising medium.

SECTIONS AND FOUNDATION FOR PROMPT SHIPMENT.

We have a larger stock of sections than we ever had at this season, and are prepared to make prompt shipment of sections, foundation, and most other goods. There has been very little delay in orders all season except in a few cases where something special has held some orders longer than usual. Our agents generally are also in a position to make prompt shipment. If the bees get lots of honey, and you need more goods quickly, remember we are in a position to furnish them by first train.

SECOND-HAND FIVE-GALLON CANS.

We have to offer a quantity of second-hand five-gallon honey-cans in good condition for use again, especially for amber or low grades of honey. We offer the best of them at $4.50 for 10 boxes of two cans each; $10.00 for 25 boxes. We have some which are not so bright, and yet are honey-tight, that we will furnish at 10 cts. a box less. The boxes in which the cans are shipped are also second-hand, but will be put in good condition when shipped.

FAULTLESS SPRAYER.

There is nothing superior to this little device for killing potato-bugs, currant-worms, lice on stock or poultry, and it is worth three times its cost for spraying horses and cattle to keep off the flies. We have sold a great many hundred dozen in the past few years. They are not in our general price list, and we have a surplus stock which we wish to reduce, and we therefore offer the all-tin sprayer for 27 cts. each, three for 75 cts., $2.50 per dozen. A local canvasser could sell these easily at this season of the year at 40 or 50 cts. each. We have twenty or thirty dozen which we will furnish, while they last, at these figures. If ordered by mail, add 25 cts. for postage and packing.

SPECIAL PRICE ON TIN CANS.

We recently secured a special bargain in half-gallon square cans. They are choice bright stock; but as the pattern differed slightly from the regular one they are now making, they closed them out at a special price. We have also an overstock of quart oblong square cans. While this stock lasts we will make the following prices for shipment from Medina only:

¼-gal. oblong square cans with 1½-inch screw, $5.00 per 100; $45.00 per 1000.

½-gal. square cans with 1-inch screws,			$6.00	per 100.
½-gal.	"	" 1¼-in.	" 6.50	"
½-gal.	"	" 1½-in.	" 7.00	"

In 500 lots, 50 cts. per 100 less.

We have also a good stock of one and five gallon cans at regular prices.

GLASS HONEY-PACKAGES.

Anticipating a demand for honey jars and bottles we have put in two carloads of stock before the summer shut-down of the glass-factories, so that we are prepared to furnish the various jars listed in our catalog. We have also a few odds and ends of stock, such as we formerly listed, which we offer, to close out, as follows. We can not duplicate these when present stock is sold:

1-lb. tin-top tumblers, No. 789, 5 bbls. of 200 each, at $4.50 per bbl.

1½-lb. tin-top glass pails, No. 778, 2 bbls. of 100 each, at $5.00 per bbl.

Large lb. tin-top glass pail, No. 777, 1 bbl. of 150, $5.00.

Small lb. tin-top glass pail, No. 776, 1 bbl. of 200, $5.50.

1-lb. Oaken Bucket tin top, with wire bail, 1 bbl. of 150 for $5.00.

These prices are all a dollar a barrel less than we used to sell these tumblers and pails at. We have also a little loose stock which we will pack and include at same rate.

WIDE-MOUTH MASON FRUIT-JARS.

The carload price on Mason fruit-jars is over a dollar a gross higher this year than last. We carried over quite a large stock, which we will sell at the same prices as heretofore—namely:

Pint	doz., 52 cts.;	6 doz., $3.00;	12 doz., $5.75
Quart	" 55 cts.;	" 3.10;	" 6.00
Half-gallon	" 75 cts.;	" 4.10;	" 8.00

Triumph wrench, 15 cts. each.

Ball's waxed rings, 5 cts. per dozen. These are far superior to rubber rings for fruit-jars, and cheaper.

In addition to the regular style of Mason jars we have a stock of wide-mouth special Masons, with 3-inch opening. These are especially desirable for canning large fruit whole, or for packing chunk comb honey. These jars are of extra quality, and cost $1.65 per gross more than the regular pattern. As we do not list them we offer our present stock at an advance of 10 cts. per dozen, $1.20 per gross, on any size. They have zinc caps and rubber rings. We have no wax rings of the right size to fit these jars. They are a bargain at this price.

AIKIN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-lb. size, 3½x5½.

1	$ .65	10	$5.50
5	3.00	50 @	5.25

2-lb. size, 5x7½.		5-lb. size, 7x10.	
1	$ .80	1	$ 1.20
5	3.75	5	5.50
10	7.00	1	.50
50 @	6.60	5 @	.00

3½-lb. size, 6x9½.		10-lb. size, 10x10½.	
1	$1.00	1	$ 1.50
5	4.75	5	7.
10	8.75	1	13 50
50 @	8.25	5 @	13.

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 10	30 cts.
Lots of 25	50 cts.
Lots of 50	75 cts.
Lots of 10	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

SECOND SERIES OF PRIZE-PHOTO CONTEST.

Many of our subscribers could not take part in our first contest, as the time was so short, and it was the season of the year when good photos could not be obtained. Those who were fortunate enough to have pictures had an advantage. To give all an equal chance we have arranged our second contest to extend over the best time in the year to take pictures. Keep your eyes open for a good view, and when you have found it get a camera and you will have a chance to win one of our liberal prizes. It's a great satisfaction to have a good photo of one's bees, even though a prize is not won.

We offer the following prizes for different kinds of photos: Class A, photo of apiary. Class B, photo of comb honey. Class C, photo of any object of interest to bee-keepers, not included in two first classes.

Rewards:—Each class will be awarded a first, second, and third prize. First prize, winner will be allowed to select goods from our catalog to the amount of $5 00; second prize, same as first, except amount is $3.00; third prize, same as first, except amount is $2.00.

Conditions:—Contest closes Sept. 1, 1905. Contest is open to all ages, and limited to United States and Canada, as the foreign contest is still on. We suggest that photos of honey should show the product of one colony, and be arranged so as to expose the entire face of each section, similar to the photos often shown by Mr. Danzenbaker. If preferred, a select ten sections could be photographed, or any other idea may be used.

Photos should not be marked in any way, but your full name and address should be put on a separate sheet, and enclosed with photo, marked "for prize competition." Do not neglect this. Photos not winning a prize will be paid for according to the value to us, if we can use them. The prizes will be awarded with special reference to clearness of photo and artistic beauty and the instructive and interest-drawing power. No photo returned unless stamp is enclosed for return. Prize-winning photos are to become our property.

Special Notices by A. I. Root.

THE MAN WHO ADVERTISES TO SELL YOUR PROPERTY, NO MATTER WHERE IT IS LOCATED.

The *Rural New-Yorker* is still publishing letters from those who have been dealing with Mr. Ostrander. A good many sent him $15, some 25, and two or more sent 50; but no report has come in as yet that he has ever made a sale of *anybody's* property, and little or no proof has come in that he even advertised the property as he promised to do; and yet some periodicals are still receiving his advertising matter.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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Swarthmore Queen-rearing Outfits

Prices of Complete Outfits:

Outfit No. 1--Experimental
Postpaid, $1.50

1 Cell-bar,
16 Waxed Flange Cups,
1 Holding-frame,
12 Transfer-cages.

Outfit No. 2--Amateur
Postpaid, $3.50

2 Cell-bars,
35 Waxed Flange Cup,
1 Needle,
1 Holding-frame,
18 Transfer-cages,
1 Cell-stick.

Outfit No. 3--Professional
By Freight or Express, $7.50

2 Blank bars,
3 Holding-frames,
1 Cage-pocket,
1 Grafting-plug,
10 Comp. mating-boxes,
1 Bar-holder,
1 Swarm-box with lid,
2 Cell-bars,
1 Incubating-cage,
1 Grace Cell-compressor,
100 Flange Cups,
2 Swarth. nursery-cages
24 Transfer-cages,
1 Needle, 1 Stick.

These goods and books are for sale by all dealers in bee-keepers' supplies, and furnished at wholesale and retail by
The A. I. Root Company.

Prices of Separate Parts:		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
Breeding-queen Hive	1.00	
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100	.75	.09
Flange-cups, waxed, 2c each; per 100	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Mating-boxes, complete, each 20c; 10	1.50	.12
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box lid only	.25	
Trap-box	.50	
T Stands, each	.10	.06
Transfer-cages	.10	.02

Swarthmore Books

"INCREASE" tells now to form new colonies without breaking up working colonies, postpaid .25
"BABY NUCLEI;" how to mate queens with a mere handful of bees .50
"CELL-GETTING;" ready about May 10 .50

Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight. **The Bee & Honey Company, Beeville, Bee Co., Texas.**

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

JUNE PRICES

Untested, each.....$1.00; ½ doz., $5.00; doz., $9.00
Warranted, each....1.15; " 6.00; " 10 50
Tested, each........ 1.50; Select tested, each 2.00

A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

W. W. Cary & Son, Lyonsville, Mass.

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

Of the highest standard bred from our superior Golden and Leather Italian stock. Gray Carniolan queens mated to Italian drones. Our colonies with these queens reared last season have from three to four frames of brood now. All queens are large and fine.

Untested queens, $1.00 each, 6 for $5.00, 12 for $9.00; tested, $1.50; select, $2.50; extra best, $5.00. Nuclei and full colonies in season. Let us book you for a trial order from our Superior stock—a fine lot of breeders on hand now. List soon. **T. S. HALL, Jasper, Pickens Co., Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

Red-clover : and : Italian : Queens

Untested, 75c; $8.00 per dozen. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

The Demand for

MOORE'S - STRAIN - OF - ITALIANS

becomes greater each year; the following report shows the reason why:

EXCEL IN STORING CAPACITY

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never in my thirty years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel any thing I have ever had." ::: ::: :::

Untested queens, $1.00 each; six, $5.00; dozen, $9.00
Select untested, $1.25 each; six, $6.00; dozen, 11.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free :: ::

J. P. MOORE, MORGAN, PENDLETON CO., KY.

Queens-Italian-Queens

By Return Mail

Queens from Root's Red-clover Stock and Golden Italian Queens—the best honey-gatherers in America. Untested, 50 cts. each, or $6.00 per dozen. I guarantee safe delivery. Send your orders to ::: ::: :::

E. A. Simmons, Fort Deposit, Ala.

ITALIAN QUEENS.—Fine, northern-bred; originated from best long-tongued "Red-clover" breeders in the United States; work on red clover; bred in full colonies; under swarming influence; noted for their excellent honey-gathering, wintering qualities, and gentleness. Untested, $1.00; six, $5 00. Tested, $2 00; six, $10.00. After July 1st: 75c, $4.00, $1.50, $8.00. Satisfaction guaranteed. Write for full descriptive list.

Isaac F. Miller, R. F. D. No. 2, Brookville, Pa.

Do You Need Queens?

The Best Queens by Return Mail!

We can fill your order. Our strain of three-band Italians are fine honey-gatherers; queens large and prolific; satisfaction guaranteed on every queen. Send for list. Untested queens, 75c; $8.00 per doz.; tested, $1.00 each.

J. W. K. SHAW & COMPANY
Loreauville, Iberia Parish, Louisiana.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

The Best Stock

Nice three-banded Italian queens that are guaranteed to please, or money refunded. Ready to mail about June 10th, in any quantity, at 60 cents each. Free circular.

L. H. Robey, Worthington, W. Va.

A LARGE STOCK OF HIVES
ON HAND--OVER 2000

So you see we can fill orders promptly. Sections nearly a million. Our storehouse in Syracuse will hold 20 carloads of bee-supplies—send in your order for anything needed. If you have any wax we will allow you prices quoted in GLEANINGS from time to time. We take it any time of the year. . .

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Best shipping center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me. . .

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Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

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AT
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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. .˙ .˙ .˙ .˙

Bees and Queens
from Select Stock

Correspondence Solicited.
GEO. A. HUMMER,
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Shipping-point, Macon

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ .˙ .˙

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

QUEENS

We have secured the services of one of the best Queen Specialists in the U. S. Over 20 years' experience in raising queens. Our yard is stocked with select breeders from the very best yard in America, and can send queens by return mail.

Prices to Sept. 1, 1905

Untested Queens - - -	$ .75
Select Untested Queens -	1.00
Tested Queens - - - -	1.50
Select Tested Queens - -	2.50

GRIGGS BROTHERS
523 Monroe St. TOLEDO, OHIO

Dadant's

Foundation

It excels. We guarantee satisfaction. . . . .

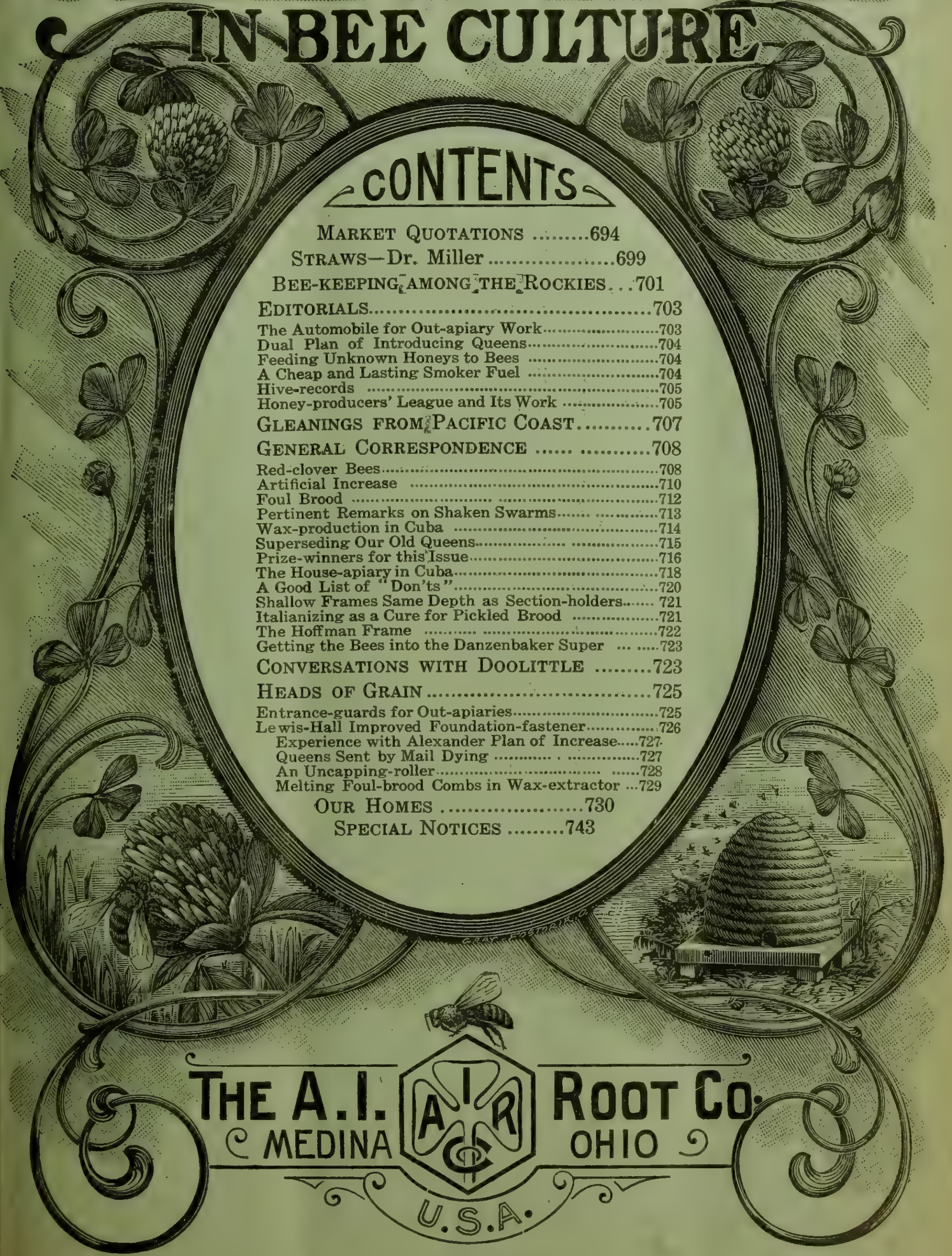
Bee - supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII JULY 1, 1905 Number 13

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

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Western
Michigan

Root's Goods at
Root's Prices.

I HAVE the largest stock and a full line of Root's goods, and can ship promptly. Don't put off your orders until you want the goods, and suffer loss and annoyance because they don't arrive in time to get the best results. My 36-page illustrated catalogue will be sent you free for the asking, and a full description of the HILTON Chaff HIVE and SUPERS, with a comparison made by Michigan State Agricultural College, between the single and double walled hives, all free for the asking. ❦ Cash or goods in exchange for wax. ∴ ∴

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We can fill your orders to-day. Big stock. Immediate shipments. Best shipping-point in Michigan.

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FOUNDATION

We have a complete stock of
Root's Goods for Michigan Bee-keepers
and now is a good time to place your order. ❦ Our catalog for the asking. ❦ Beeswax wanted. ❦ Remember the Danzenbaker hive, the comb-honey hive.

M. H. HUNT & SON
BELL BRANCH, MICH.

C. H. W. Weber,

Headquarters for

Bee-Supplies

Distributor of Root's Goods Exclusively at Root's Factory Prices.

COMPLETE STOCK FOR 1905 NOW ON HAND.

Freight rates from Cincinnati are the lowest,

Especially for the South, as all freight now goes through Cincinnati.

Prompt service is what I practice. Satisfaction Guaranteed. You will save money by buying from me. Catalog mailed free. Send for same.

Book orders for Golden Italians, Red Clovers, and Carniolan Queens. For prices refer to my catalog.

Discounts allowed on early orders; take advantage by ordering now.

* * *

I Keep Everything that Bee-Keepers Use, a large stock and a full line, such as the Standard Langstroth, lock-cornered, with and without portico; Danzenbaker hive, sections, foundation, extractors for honey and wax, wax-presses, smokers, honey-knives, foundation-fasteners, and bee-veils.

Honey and Beeswax Wanted.

I will buy honey and beeswax, pay cash on delivery; and shall be pleased to quote you prices, if in need, in small lots, in cans, barrels, or carloads of extracted or comb, and guarantee its purity.

I have in Stock Seed of the following Honey-plants: Sweet-scented clover, white and yellow, alfalfa, alsike, crimson, buckwheat, phacelia, Rocky Mountain bee-plant, and catnip.

C. H. W. Weber,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.
Cincinnati, - - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—As the season advances there is very little call for comb honey; in fact, no sales, and we make no quotations. Commission men are accepting any offer they can get for what little stock they have on hand. Extracted honey is in some demand. Possibilities of a big crop are holding prospective buyers back. We quote as follows: Fancy white, 7@7½; amber, 6@7; dark, 5½@6. Beeswax, in good demand at 29@30. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
June 21. 10 Vine St., Philadelphia, Pa.

NEW YORK.—The comb-honey market is very quiet, and we are hardly justified in making quotations. Some few lots are sold here and there at 13c for fancy, and 10@12 for lower grades, but no large blocks could be moved at these figures. There is considerable of last year's crop unsold, part of which, no doubt, will have to be carried over until the fall. Extracted honey in fairly good demand. New crop California honey selling at 6½@7 for water white; 6@6½ for white; 5@5½ for light amber; Southern, 50@60 per gallon, according to quality. Beeswax is somewhat declining, choice average stock selling at 29c.

HILDRETH & SEGELKEN,
June 19. 265-7 Greenwich St., New York.

DENVER.—Demand for both comb and extracted very light. No. 1 white comb, per case of 24 sections, $2.20@$2.40; No. 2, $1.75@$2.00. Extracted, 6½@7½. Bees-25@26.

COLORADO HONEY-PRODUCERS' ASS'N,
June 21. Denver, Colo.

KANSAS CITY.—There is very little comb or extracted honey on the market at present, but what there is is being quoted as follows: Fancy white comb, 24-section cases, $2.25@2.50; No. 1 white and amber, $1.75@$2.00. Extracted, per pound, 4½@6. Beeswax, 25@28.

June 20. C. C. CLEMONS & Co., Kansas City, Mo.

CHICAGO.—The little that sells consists chiefly of extracted, and the market is a small one. Comb ranges from 12@12½ for the best white, with off grades 1 to 3 cts. less. Extracted white, 5½@7; amber, 5@6. Beeswax ready sale at 30.

R. A. BURNETT & Co.,
June 19. 199 South Water St., Chicago, Ill.

ST. LOUIS.—The honey-market is still in a very unsatisfactory condition. The demand is very limited, and there is considerable old comb honey as well as extracted honey unsold on hand. We quote as follows: Fancy white comb honey, 13½@14; A No. 1, 11@12; No. 1, 9@11; broken and lower grades, 5@7. Choice extracted white clover or Spanish needle, in five-gallon cans, 6½@7; dark and Southern, in five-gallon cans, 5@5½; in barrels, 4c for dark and 4½@5 for light amber. Beeswax, 28½.

R. HARTMANN & Co.,
June 10. 14 So Second St., St. Louis, Mo.

WANTED—Beeswax. We are paying 26c cash or 28c per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

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WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
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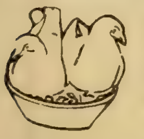

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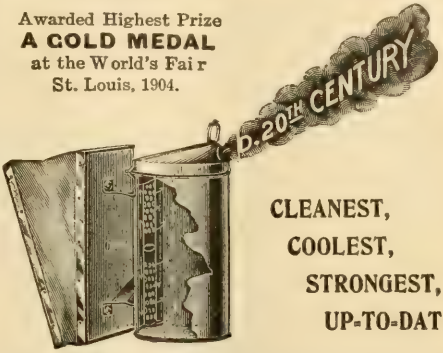

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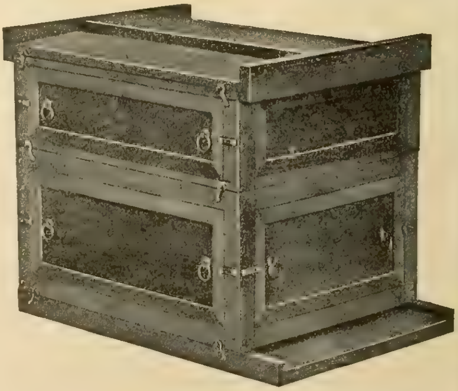

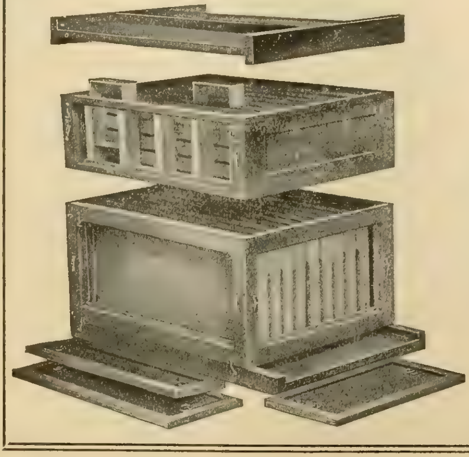

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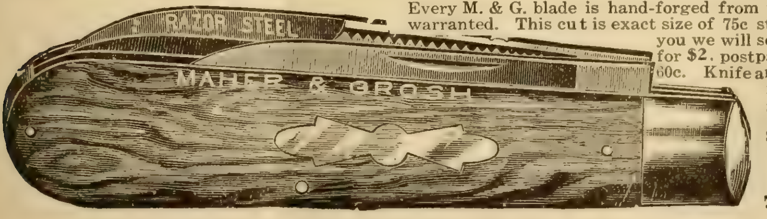

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G. B. Lewis Co., Watertown, Wis.
Gentlemen:—Your sections are simply superb.
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Rome, Pa., Route 16, May 22, 1905.
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Yours truly, GEORGE BROWN.

Grand View, Ia., June 3, 1904.
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Gentlemen:—I received those sections in good shape, and am well pleased with the same. They are all right in every way. I shall recommend your bee-supplies to other bee-keepers. I think you make better goods than any other firm in the world. Accept my thanks.
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Kenton, Ohio, May 4, 1904.
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Gentlemen:—The goods are simply fine in every respect. We have compared a few of the No. 1 sections bought of another firm which we carried over from last season with your No. 2, and find that the No. 2 are superior.
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GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
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Vol. XXXIII. JULY 1, 1905. No 13

Stray Straws

By Dr. C. C. Miller.

To the 99 per cent of honest bee-keepers I would say, it isn't honest to sell half-ripened nectar for honey. To the one per cent of dishonest ones, if there are so many, I would say, you're cheating yourself more than any one else when you extract any thing but the best.

G. M. Doolittle tells of his interesting experiments, page 666, in which the last black bee disappeared 45 days after emerging. But that doesn't mean that the average life was 45 days, *unless* all the bees lived exactly the same length of time. If they died at different ages, the average life must have been less than 45 days.

Prof. Cook, after testing pretty much all the honeys, pronounces sage "pre-eminently superior," page 648. The editor of *Modern Farmer* puts Missouri honey at the top, and the editor of *Rural Bee-keeper* calls Wisconsin honey the best, which is only another way of saying that these three men live respectively in the three regions mentioned.

That label, page 644, "White-clover Honey Compound." Is that honest, when only 25 per cent is honey? Would you call butter "Salt Compound" because there's salt in it? [No, it is not honest; but when we consider that, in that same Empire State, the same goods with the same amount of adulteration were formerly put out as "pure honey," we can feel that a big step forward has been taken in the interest of the honey business.—Ed.]

Been wearing my pants in my stockings for years to keep bees from crawling up my legs, but this year I'm wearing trouser-guards such as bicyclers use. Ever so much nicer. [Bicycle pant-guards are getting to be quite common among bee-keepers. They are cheap, and can be had at any bicycle-shop; and they answer almost as well as pants legs tucked into the stockings. They are far more dignified, especially when nice company comes around desiring to see the bees.—Ed.]

At this date, June 20, white clover is getting in its best licks. Had to get up at 4 o'clock this morning to get in the day's work, so some of these Straws may be a bit damp from the morning dew. [There would be no objections if your Straws are daubed up with propolis finger-marks, or a little honey now and then. They generally are so marked, and in this issue they smell of clover, bee-stings, etc. Editor Hill, of the *American Bee-keeper*, once said he could always tell when a certain editor had been out among the bees by a certain tone that appeared in the editorial writings.—Ed.]

For forming baby nuclei, Mr. Editor, you found they would desert without brood and queen, page 643. I had no brood, and sometimes only a queen-cell, and had no desertions. But I kept them imprisoned for three days. [Possibly the confinement of three days *might* make the bees stick to their homes better; but our rule is to form a nucleus with bees from another yard, and confine them over night and let them out. Without brood or a virgin or a cell they will usually desert, and we generally find it better to have brood, even with a virgin. The average bee-keeper, I am satisfied, will succeed better with the brood in any case. We have had some failures without it.—Ed.]

White sage and black are mentioned, page 648. But don't Californians say that a large part of what is sold as white-sage honey is gathered from the purple sage? [Purple sage, if I am correct, is very rarely mentioned; but button, black, and white sage are the sources of all the so-called white-sage honey. As I have before pointed out, the name "white sage" refers to the honey more particularly than to the particular species of plant bearing that name from which the honey is supposed to come. The honey from the black and button sage is just as nice and fine in quality as that from the white; and it is legitimate and proper, inasmuch as the name has become established, to call it white sage. The black and button sage yield the larger portion of the honey. White sage, if I remember correctly, comes on first.—ED.]

"MY FIRST CROP . . . May 10 . . . sold at 7 cts. How does this compare with bee-keeping in the North?" page 641. Wonder how much it will cost me to move down into Texas beside my good friend Scholl. Hold on, though; here's something on next page — something about "really the only country here where honey-yielding flora is productive" being bottoms subject to floods which "happen every few years" to carry off the hives, etc. Sorry, friend Scholl, but I think I'll not come just yet. You see I get quite a bit of honey up here on a nice hill where I don't have to keep my bees on scaffolds.

STOP CRYING about the disappearance of basswood, Mr. Editor, long enough for me to give you a crumb of comfort. "The furniture and box makers use a hundred times as much of this valuable wood as the manufacturers of bee-keepers' supplies," page 668. Well, as soon as cost gets high enough other wood will be used for furniture and boxes, leaving the whole output of basswood for sections, and we can stand a little rise in cost, can't we? [When basswood is so scarce that it will not be available to furniture-makers, it will be too high-priced for sections; or, rather, to put it in another way, the supply available will be so small that the section-maker would not be able to rely on a sufficient supply to take care of a season's business. The fact is, the furniture-makers will use this wood as long as the section men do, I opine; and when *they* can not get any, *we* shall not be able to obtain it.—ED.]

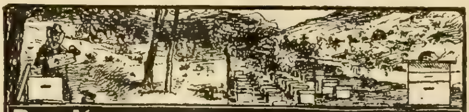
"WITHOUT PROTECTION the bees will desert the super entirely on cool nights, and all work will stop for the time being," page 643. The implication is that we'll get more honey by keeping supers warm. But really will there be very much difference? How much more do you think the bees will *gather* for having their supers blanketed? Suppose the bees are all driven out of the supers by the cold to-night; won't the fielders gather just the same amount to-morrow? That will only make the nurse-bees hustle a little more lively to do the super work next morning that they ought to have done in the night; but if it makes no difference in the gathering won't we get just the same amount in the long run? Or will the nurse-bees strike if they're crowded too hard, obliging a squad of fielders to be detailed for home duty? [Mr. Burt says he does not guess, but knows, that he secures more and better honey with the protection than without. If the bees are out of the super during the night because it is cold, the process of ripening or evaporation is delayed just that much. Possibly you will remember A. I. Root contended years ago for comb-honey supers inside of the Simplicity hive, or what was virtually a double-walled hive, or a winter-case, the same as Mr. Burt uses. If you will turn back to the early volumes you will notice where you and the senior editor of this journal had an argument on this same point. This, I think, was about the middle of the 80's. It is, no doubt, true that locality has much to do with this matter as well as the season. The very warm nights, for example, that we have been having for the last week would render protecting-cases of no particular advantage. But sometimes we have fairly good honey weather with cool nights and hot days. It is then, if I understand Mr. Burt correctly, that the winter-cases are money-makers.—ED.]

BEEN TRYING a pair of those fingerless gauntlets. I'd rather stand a sting now and then than to wear any thing so warm on a hot day. But I'm glad to have them, after all; for there are times when bees are especially cross, and yet must be handled; and then it's quite a comfort to be saved a lot of stings on the hands and wrists. [You will remember that the gauntlets I sent you were fleece-lined to make them more sting-proof. As I wrote at the time, we can furnish you the same kind of gauntlet made of lighter material; or, better still, you could make them of mosquito-netting, which will serve to protect the fleshy parts of your wrists almost as well as heavier material. Stings on the backs or palms of the hands, or on the fingers, I do not care so much about; but I do not want any bee up my sleeves, whether it stings or not. Two or three bad stings up the sleeve are apt to make, in my case at least, a lame arm for a day or two; while stings almost anywhere else on my body leave no effect beyond a sharp pain at the moment the sting is received.—ED.]

CONFUSION is feared by friend Scholl if "one brood" is used for "one frame of brood," because he thinks the word "brood" applies to all the brood in a colony. Of course it does; but look here, Louis, did you ever hear the brood of a colony spoken of as "a brood" or "one brood"? So when "a" or any numeral is used, we know that a frame or a number of frames is meant. In this locality the term has been so used for years, and never the least confusion. I don't believe you can make any confusion if you try. Try. [I see no confusion that can possibly come from the term "one brood" or "a brood;" and GLEANINGS will be glad to adopt the term in its columns if its correspondents will use it. If you set the pace in your own Straws I will endeavor to follow suit in the editorial matter. The only possible objection I see is that beginners or new readers might be confused. They are confused as it is, because bee culture has a special nomenclature of its own. When I say we gave a colony a "cell" or a "virgin," what does that mean to a new reader? On the whole, GLEANINGS is quite willing to adopt the shorter term.—ED.]

MR. EDITOR, you don't get my point, page 639. Is it the odor of the queen herself that plays an important part, or does the queen get her odor from the colony? [Every queen has an odor that we may designate as queen odor, and which the bees in any colony always recognize. But there is another odor which we may, for the want of a better name, designate as colony odor—one that is peculiar to that particular colony. This colony odor is recognized by bees just as the dog is able to recognize the odor or tracks of his master from hundreds of other people who may be in a crowd, or who may have walked over the same place. Our theory is that queen-introduction depends very largely on a queen acquiring the colony odor of the colony to which she is introduced. In saying this I do not mean to imply that queens can not be introduced without acquiring this odor. A queenless and broodless colony will often accept a queen without the formality of introduction. Very often a queen may be introduced to a colony only a few hours queenless, having brood in all stages of growth, without the caging process. While there are exceptions to the general rule, we argue that colony odor is something that the queen should acquire before she is allowed to run loose among the bees without harm. We are practicing the dual plan of introducing, every day. There may be two virgins in the hive at once, one caged and the other out. When the latter begins laying she is taken out and sold, when virgin No. 2 is released and ready to take her flight. When she begins to lay, No. 3 takes the place of No. 2, and so on. This dual plan of introducing would not be possible except that both queens have the colony odor, or have during the time of caging acquired *something* which is *individual* and *peculiar* to that colony to which the queen is introduced.—ED.]

YOU SEEM BOUND to see trouble ahead with regard to sections, Mr. Editor. "It is a big job to box up and prepare for shipment 4000 pieces to make 1000 sections." Is it any bigger job now than when we used them years ago? "I know of no lumber that would be available except hard wood." Well, why wouldn't hard wood make good sections? But if I'm not mistaken my first sections were pine. There's poplar, too, and why not all the soft woods? Look here; you tell us how much it will cost for 1000 four-piece sections before we lose sleep trying to decide whether to go over to bulk or extracted honey. [No, it is no bigger job to pick up and pack 4000 pieces to make 1000 sections than it was several years ago, except that the grading would cost more because there was no grading years ago. Here is the point: In the early 70's bee-keepers were quite willing to pay from $6.00 to $10.00 a thousand for sections, without a demur, and, besides, the manufacturer had low-priced timber to work with. Thus, both going and coming it was possible for him to go to the extra labor and still make a good profit. In regard to pine for sections, you are apparently unaware of the fact that this would be almost the most expensive wood that we could use. Poplar is keeping pace with basswood; and when the latter is all gone the former will jump to a prohibitive price. Four-piece sections, dovetailed all round, made of basswood, are now listed at 75 cts. per 1000 more than the one-piece. No more lumber is used; but the difference in the price shows the difference in the amount of labor in making and boxing. Mr. de Beche in this issue suggests that there is a wood in Cuba that would fill the bill for one-piece sections. There are, perhaps, others. The relief would come, *not* from making *four*-piece sections of some expensive wood, but from adopting some other timber in the tropics for one-piece, and making the sections where the timber grows. But I question whether there is *any* wood *anywhere* that would really take the place of basswood for sections.—ED.]



BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

BEES THAT QUARREL WHEN UNITED.

The Eastern races of bees do not unite well as a rule. So many of the time and labor saving methods which are so necessary in the handling of bees in a wholesale way depend on the ability to unite colonies or parts of colonies readily that it is a serious count against any race of bees that an attempt to unite usually results in a fight to a finish.

REMEDIES FOR BEE-STINGS.

This is the time of year when the novice in bee-keeping is anxiously searching for a reliable antidote for bee-stings. The old hand at the business takes little interest in the subject, so he need not read this, which is intended solely for the benefit of the beginner. It is a serious matter for him, and I hope that my advice may be of some use to him. There are several hundred remedies for bee-stings, and they are nearly all good if properly used. To use them properly the sting should first be removed, and this should be done instantly—not in a moment or two, not in a second or two, but *instantly*. Don't wait for a knife to scrape it out, or for tweezers to pull it out, or for any one else to get it out for you. Train your mind and your muscles to act like lightning, and scrape or rub the sting out with your hand, your arm, on your clothing, the hive, or whatever may be handy—but *get it out at once*. Theoretically, a bee-sting should not be squeezed. Practically, the time spent in trying to get it out in a way to avoid this is far more harmful. After you have got your sting out thus, you may apply your remedy. Put it on gently. Don't rub it in. This is almost always harmful. Then let it alone. A second application is seldom necessary and often injurious. Applied in this way, with special attention to the first part of the instructions, you should have no difficulty in finding a bee-sting remedy that will exactly fit your particular case.

WEIGHT OF A SECTION OF HONEY.

I see that, in my statement on page 526, I should have been a little more explicit. At the best, it is only a general truth to which there will always be exceptions, and it requires some explanations and possibly modification. The original "pound section," introduced by A. I. Root so many years ago, was 4¼ in. square and 2 in. wide, if I am not mistaken. This section, used with separators, and well filled, would hold approximately a pound of honey. Then the width of the section was cut down. I am not sure as to the reason for this, but it was probably in order to make it fit better the hives that came into use later, especially when the change was made from the ten-frame to the eight-frame hive, and from the old double-tier wide frame with tin separators to the single-tier super generally using the thicker wood separators.

At the present time the standard width for sections is 1⅞ inches. When used with separators this section can seldom be made to hold a pound of honey. Only the exceptionally well-filled ones will come anywhere near it. The average case of 24 sections will weigh about 21 to 22 lbs., varying with the season, the locality, the race of bees, the strength of colony, the kind of super, whether full sheets or only starters of foundation are used, and perhaps a few other conditions. The "plain" section, 1½ inches wide, corresponds very closely to this, being a little heavier, on the average, I believe.

Now, there are some people who have gone a step further in cutting down the width of the section, and are using 1¾ or "seven to the foot" regular, or 1⅝ plain, all of these three being nearly the same in weight when filled. I am one of those who use these narrow sections, and I think them superior in several respects to the wider ones. I will mention only one of these here, which is that there is a much greater uniformity in the weight of individual sections, especially if used in a properly made super. This is more particularly the case when the honey-flow has been rather light or the colony has not had a very strong working force. The reason for this greater uniformity of weight is, in my opinion, that the thickness of the comb more nearly corresponds with what the bees build naturally. They will fill the thicker sections when they are obliged to; but unless they are crowded they will not attach their combs to the bottom as well; they will not build as close to the wood nor down into the corners as well as they do with the thinner ones.

Now, perhaps, you can see what I had in mind in stating that, the nearer sections approach a pound in average weight, the greater will be the variation in individual weights. There are two ways in which you can increase the weight of a section of honey, namely, by making the section larger, and by having it better filled. Of course, the better filled the sections are, the more nearly they approach uniformity, provided that separators have been used. But if you succeed with a strong colony during a heavy honey-flow, and with all other conditions favorable, in having your wide sections so well filled that they are uniform in weight, they will not compare well in weight with those produced under less favorable conditions, and I am speaking of crops or carloads of honey and not of single cases. While much might be done profitably in some cases to increase the average weight of sections by the adoption of better methods, the only practicable way to get the average producer to have his sections anywhere near a pound in weight would be to increase the size of the section. This might be done in two ways, namely, by making the section higher or wider, or by making it thicker. Either of these methods, but more particularly the latter, will tend to make greater the difference in weight between the heaviest and the lightest sections produced in a season in any given apiary or locality.

As a practical illustration bearing on the subject I will say that I have frequently shown dealers that cases of the wide sections, weighing two or three pounds more than my cases, contained sections that were lighter than any of mine.

SWARMING.

Swarming began early here this season, and in many places there was a regular swarming mania. Every thing wanted to swarm and then swarm again. Beginners were highly elated at the three or four swarms they sometimes got from one, while the older hands tried to keep back swarming until a little later. The swarming was induced by the flow from cleome, which with its large amount of pollen seems to have a particularly stimulating effect in this direction. Colonies would swarm with plenty of room in empty extracting-combs.

THE SEASON UP TO DATE.

The flow from cleome, while not very great, was followed closely by that from alfalfa, so that the yield so far has been very fair. I took off the first finished case June 14, whereas it was the 22d last year, and the 19th the year before. The first flow from alfalfa never lasts long here, though, as it is cut too soon. At this date, June 17, the hay is nearly all cut and bees are inclined to rob. Sweet clover is now just beginning to bloom, and on that rest our hopes of a crop.

PRODUCING BOTH COMB AND EXTRACTED HONEY FROM THE SAME SUPER.

There seems to be considerable enthusiasm manifested over the plan outlined on p. 594. I thought myself, when I first tried the plan some eight or ten years ago, that I had struck a great thing, but somehow I did not like it as well in practice as I anticipated. The greatest trouble was the difficulty of keeping the sections and separators tight together in the middle of the super. This was partially overcome by putting an extra end-bar in the middle of the extracting-frame, all close-fitting, of course. These small frames, with the division in the middle, were rather troublesome to extract from. Then the honey could not be extracted well except when warm from the hive, or when warmed up, and it was not convenient to pull the comb-supers to pieces to get out these little extracting-frames as soon as they were taken from the bees, extracting, perhaps, only four or five of them at once. Keeping them properly stored when not in use was another complication, as I did not expect to use them during the whole season. Perhaps all of these points might have been worked out satisfactorily, especially by one who was making a specialty of bee-keeping, but at that time I had other business on hand, and I was trying to handle my bees with the least possible amount of labor that would secure good results. This required too much time and complication to suit me under the circumstances, so I adopted other plans for securing the better finishing of the sections at the side of the super, and for the rest I fell back upon my well-tried "combination system" of using shallow extracting-supers in connection with comb-supers. I never published any thing in regard to it, so I am not entitled to any credit if the plan should prove practical on further trial, as no doubt it will for some.

But, if I am not mistaken, I was the first one to make public the idea of using the shallow extracting-super in combination with comb-supers, which I consider more practical. If you will look back over the files of GLEANINGS of twelve or fifteen years ago you will find an article by me on my "combination system," which I also outlined in a paper read at the Chicago convention at about the same time. Later, Mrs. Barber and others hit upon the same plan, independently, perhaps; and my earlier articles having doubtless been forgotten by the editor it was hailed as a new thing, though it is the plan on which my apiaries have been handled for a number of years.

GRASSHOPPERS.

The grasshoppers are beginning to hatch, myriads of them in some places. What the effect will be on the honey crop is an interesting question. Last year in some places they ate the alfalfa-blossoms badly, and so reduced the yield. There will probably be more of them this season, and they may damage us greatly.

SWEET CLOVER.

In spite of the apparent difference in season, estimates of which varied all the way from a week earlier to a month later than usual, both yellow and white sweet clover began to bloom on exactly the same dates as last year, and just fifteen days apart. An increase in the amount of yellow sweet clover would be a fine thing for the bee-keepers here.

GIVING BROOD TO SHAKEN SWARMS.

Dr. Miller wants to know whether the swarms that absconded after being given brood swarmed out the first day or after several days. I believe they all came out again the day after they were hived. Two years ago a large percentage, to many of which brood had been given, swarmed out the next day. Some of them, though, were hived in only one section of my hive, with supers above. This season, all swarms, artificial or natural, were hived in two sections of the brood-chamber, generally with only starters in the frames, and without brood, except in the case of two or three after-swarms. Two or three days thereafter, the lower section was taken away, leaving them in a brood-chamber six inches in depth, having the capacity of about five Langstroth frames. So far as I know, not one of them swarmed out. Of course, supers were given them at the time they were hived.

Editorial
By E. R. Root.

THIS is the biggest season for white and red clover that we have had for many years; but, unfortunately, the conditions for their rapid growth have not been entirely favorable for the secretion of nectar.

THE TACK-CLAW HIVE-TOOL.

WE have been using a common tack-claw as a hive-tool, as suggested by Mr. Chalon Fowls, of Oberlin, Ohio, for several weeks. We find this tool to be very effective; and, what is more, it is obtainable at any country hardware store for ten cents.

THE AUTOMOBILE FOR OUT-APIARY WORK.

I HAVE been using with much satisfaction our little light Olds runabout in going to our three outyards to look after the work; and while these yards are located on a suburban street-car line that makes hourly trips each way, I find I can save time for myself by using the little vehicle, because I can go and come when I please, without waiting for the cars. I can work as long as I like, and when my work is done I can start home without any waiting. I often carry along a lot of stuff, such as foundation, supers, and the like. My son, fourteen years old, also goes with me as a sort of errand boy, and brings me this and that in the yard, while I am working over the bees.

THE DUAL PLAN OF INTRODUCING QUEENS.

We have something like 200 Pratt baby nuclei running at full blast. We are about inaugurating the plan of introducing two queens to these babies at a time. We will to-day, say, cage a virgin. Three or four days hence we cage another in the same nucleus. In a few days more, virgin No. 1 will begin laying. Just the minute she deposits eggs she is removed, and virgin No. 2 is released, when she will fly almost immediately. At the same time, virgin No. 3 is caged. The time lost in introducing is thus to a great extent saved, with the result that the virgin, as soon as she is released, is of flying age, and ready to lay very shortly.

The dual plan of introducing has been worked several seasons in our larger nuclei of standard-sized frames; and if it will work with a baby nucleus, a hundred of such babies will be able to do the work of two hundred, and yet secure at the same time egg-laying often enough to keep the baby supplied with a very essential element—*brood.*

As I have said before, I desire to repeat, the honey-producer can well afford to set out a few baby nuclei to supply himself with queens, fresh and ready for strong colonies that have queens too old for the best results, as per E. W. Alexander's article in this issue, or for other cases where queens were suddenly missing, and where it would be a great loss to the colony to go without a laying queen for a matter of four or five days or two weeks before one could be reared, or obtained of the dealer or breeder. And that reminds me that the queen-breeders of the country have been rushed with orders for queens this spring and summer as perhaps they never were before. At one time we were over 500 queen-orders behind; but, thanks to modern methods and the better weather, we shall be caught up now in a few days.

FEEDING UNKNOWN HONEYS TO BEES.

Every once in a while we see an item in the bee journals condemning the method now in vogue of feeding sugar syrup to bees requiring winter food or stimulation in spring or summer. Gleanings has never recommended the feeding of honey for that purpose unless it has been boiled at least two hours. As a general thing, a honey that can be bought at the price of sugar syrup is of very poor quality. For a winter food, at least, granulated-sugar syrup is far better and cheaper, as a rule.

But what called this more particularly to mind was a letter just received from an extensive bee-keeper in California, whose address and name I omit for obvious reasons. He writes:

> I bought honey of a commission man in ——, to feed to my bees, and have got a bad dose of foul brood in my two apiaries. What is the best method of feeding them, in your judgment?

This man could have well afforded to pay a double or treble price for sugar syrup rather than to take what he has.

I see no wrong in feeding sugar syrup to bees so long as we confine it *strictly to the brood-chamber.* If honey is to be fed at all, boil it two hours. Honey from healthy bees could, of course, be fed back to them; but do not take *any stuff,* the source of which is *unknown* to you.

The quotation I have made above is only one among many others; and if those who advocate feeding only honey could see some of the letters we get they would see the danger of spreading foul brood, as they are liable to do by feeding any thing but sugar syrup. So long as honey will bring a higher price, even a poor article, than sugar syrup, it is certainly folly to feed the more expensive food.

Of course, I am in sympathy with the idea of using cheap honey for feeding to keep it off the market, providing it is cheap enough to compete with sugar. But if it costs more, why run the great risk?

A CHEAP AND LASTING SMOKER-FUEL.

For a dry, clean, lasting smoke without sparks, and little or no creosote, old gunny sacks, old burlap, old pieces of carpeting—in fact, any old rags or machine-shop waste—excels any thing else I have ever tried. We have for years used a sort of excelsior that comes from the hand-holes in making hives; and, while this is an excellent fuel, the very nature of the timber of which it is made (pine) causes sooty deposits.

Some years ago Mr. W. L. Coggshall, among other good things he has contributed to the bee-keeping world, described a sort of cartridge fuel that he uses in his smokers; and you will remember he is, perhaps, the most extensive bee-keeper in the United States just now, running more outyards and colonies than any other man in the country. Well, his fuel is nothing more nor less than old gunny sacks rolled on a stick until the roll is about the size of a smoker-barrel. Strings are tied around the roll at regular intervals, when a sharp hatchet or ax cuts the roll into lengths just right for the smoker-barrel. One end of this roll of fuel is dipped into a solution of saltpeter water, and allowed to dry. A quantity of these cartridges, as we may call them, is prepared in advance, and distributed at the various yards. When the apiarist arrives he is not compelled to fuss and fuss and fuss with shavings or rotten wood to get it to ignite. He simply picks up one of these cartridges, touches a match to the dried saltpeter end, that instantly ignites, jams the cartridge into the smoker, and then he is all ready for business for two good solid hours of subduing smoke.

I was surprised yesterday to find how long old rags would burn. Running out of smoker fuel, and every thing being wet at the yard, I went to the automobile-box and picked out some greasy rags and old waste, and lit this—only a small quantity of it—and put it in the smoker. I thought it would last me, perhaps, fifteen minutes, but was surprised to find it gave me a nice good clean smoke for an hour and a half, without any coaxing or getting up steam, ready to tackle a cross colony. Yesterday, June 26, was a very cool raw day, and I had to use, as a matter of course, much more smoke than usual.

We are just getting our boys into the way of using this greasy waste from our machine-shop and factory buildings. This we have ordinarily burned under the boilers, as the insurance companies do not allow us to keep it around, for fear of spantaneous combustion; but this very fact makes it readily ignitible, and for our purpose it is the cheapest fuel that can possibly be obtained.

The reader of these lines can probably obtain all the greasy waste he can use by applying at any large machine-shop where quantities of this material are thrown away. Something not quite so good, but a good deal the same character, can be obtained at any printing-office, for large quantities of waste must necessarily be used at such a place. By "waste" I mean the stringy material of cotton that is used for wiping printers' rollers, greasy machinery, or greasy fingers. Any of the places I have named will be glad to get rid of it, as they know its retention on the premises is a constant source of danger from fire.

Mr. Bingham recommends dry sound maple wood. I have used this considerably, but, all things considered, I very much prefer excelsior or greasy waste.

It was Mr. J. E. Crane, who, some years ago, spoke about propolized quilts or cloths which had become too poor for covering frames or supers, for smoker fuel. The burning propolis makes a terribly strong smoke. It will make bees curl up in utter helplessness about as quick as any thing I have tried. It is a little too subduing, and ordinarily I should prefer greasy rags, such as we can obtain at a machine-shop.

If you provide such a place with a metal can, and request the men to throw their waste into the can, outdoors, you will soon have accumulation enough to run you a whole season.

HIVE - RECORDS.

FOR many years we have used little slate tablets, writing the record with slate-pencils sometimes, but generally with a red or lead pencil. But the slates would get displaced or lost, and the records would wash out sometimes. This year we began numbering our hives, and started out on the Dr. Miller plan of keeping a book for each yard, giving each hive a number and a full page in the book. This plan has some advantages to recommend it; but, my, oh my! with our diversity of help one man would forget and carry the book away; and when another man would go to the yard he was utterly helpless. We have abandoned the book system now entirely, and are using what I believe to be better than any thing else—a large shippers' tag made of heavy manilla paper, with a hole in one end. This is soaked in linseed oil, and is then ready for any record with pen or pencil. One tag is secured to the cover by means of a large tack through the hole, and the record of that colony or of its queens is recorded in short long-hand. Then at the end of the season they can be filed away, for each tag has a number corresponding with a number on the hive which was used. If we wish to consult an old record of some particular colony, the file containing these cards can easily be found, and the entire history obtained. It virtually amounts to a card index, with the advantage that the card itself is on the hive during the working season, and then is available in the office for reference after the working season. It sometimes happens that a customer complains that a certain queen was unsatisfactory, or that she was a hybrid. If this complaint is made along in the fall or winter we can easily look up the history of the case. The handwriting will show who put up the queen.

THE NEW HONEY-PRODUCERS' LEAGUE AND ITS WORK.

THIS new organization, although it has been in existence for less than three months, is beginning to do some valuable work. It is now preparing a statement for the general public, to go in comb-honey shipping-cases, giving the facts about comb honey, refuting absolutely the comb-honey lie. In proof of its falsity the authority of the National Bee-keepers' Association, the reward of $1000 offered by a reputable firm, and the statement of government bulletins, are cited. The full text of this will be published, possibly, in our next issue. I understand it is the desire of the League to get the manufacturers of the country to insert these leaflets, free of charge, in all the shipping-cases they send out. The A. I. Root Company proposes to do it, and I feel sure that the other manufacturers will do so for the sake of the good it will do to their own business.

Manager York has been useful in getting various items concerning comb honey in the daily press. He has prepared a very readable article, which is published in one of the largest and most influential journals in Chicago—the *Daily News*. Here it is:

> In March, 1905, there was formed in Chicago, and incorporated the following month in Illinois, an organization called the Honey-producers' League. One of its objects is "to publish facts about honey, and counteract misrepresentations of the same." It is hoped through the efforts of this League, with the co-operation of the leading newspapers and magazines of our country, to turn the tide in favor of the use of honey as a daily food, and also, as before stated, to endeavor to correct the popular delusion that comb honey is a man-made article.
>
> Some twenty-five years ago a noted "professor," in

order to work off a superabundance of "fun," as he termed it, published the statement that honey-comb was manufactured, then filled with glucose, and sealed over, all with appropriate machinery. It seems that the press of those days was waiting to welcome such a yarn, and forthwith scattered the news throughout the length and breadth of the land. It was so well done, and seemed to be so eagerly swallowed by the public, that its unfortunate repetition has been going on during all the years. The very best of metropolitan dailies, as well as the most conservative monthlies of largest circulations, have been deceived by the comb-honey misrepresentations, and have unwittingly aided in its further dissemination.

Almost for the last twenty years there has been a standing offer of $1000, made by a reputable firm, for just one pound of the so-called manufactured comb honey. But if there is any such article in existence, strange to say no one has as yet proved his claim to the reward offered. The fact is, comb honey has never been made except by bees, as otherwise it is a mechanical impossibility.

It is true that the liquid honey—honey taken from the original honey-comb by centrifugal force—is sometimes adulterated with glucose and offered as a pure article; but the various State food laws are fast getting after such adulteration, and either compelling its true labeling or driving it from the open market. At least, since the passage and enforcement of such laws in various States adulterated liquid honey is disappearing from the field of food products.

To sum up, then, any comb honey found upon the market in small wooden frames can be relied upon as being absolutely pure bees' honey. Of course, the flavor may not always be the same, as each nectar-yielding variety of flower produces honey of its own peculiar aroma, just as the pure maple sugar or syrup tastes of the maple and not of the beech or oak.

It may be said, further, that the prospects for a generous crop of honey to be harvested throughout the country the next two or three months seem to be most excellent at this time. So in all probability there will be plenty of this most healthful sweet for every inhabitant in the land, and each should see to it that he gets his share. GEORGE W. YORK,

Manager of the Honey-producers' League, Chicago.

I wish to suggest that our subscribers help along this good work by getting this statement republished in their own local papers. If you have any political or any other kind of "pull" with some influential paper or journal, go to the editor of that publication and explain why it will be doing *you* a good turn.

THE HONEY-CROP REPORT.

IN most localities the season for honey is either past or well on. From present indications the crop will be a light one in most localities, with a few exceptions, where the flow of honey is unusually good and the crop heavy.

Southern California, from reports we get, will have only from a third to half a crop. It has been a season of unusual cold—rather an exception for a wet year when the honey crop in Southern California is almost a sure thing.

In Texas the conditions are but little if any better. The catclaw and guajilla both bloomed very heavily in the spring; but on account of many rains and cool weather they yielded very little honey. The same is largely true of mesquite and horsemint. The bees would have a few days of sunshine, would work strong in storing surplus, then rain would set in and stop proceedings. It is not too late for a good crop in Texas; but the indications are for a light yield throughout the State.

Colorado and the irrigated regions are less dependent on peculiar weather conditions that affect the East and South. There will probably be a light to fair crop from alfalfa. See page 702.

The conditions throughout the clover belt have been peculiar. Almost every one who writes, reports an immense acreage of clover, but too much rain and cold weather, and some chilled brood. In some cases the hives have been filled with honey, but that is about all. In others a fair surplus has been secured; but just as the bees get fairly to work, and the conditions seem just right, it either rains or turns cold—generally both.

Strangely enough, Missouri has been having a sort of drouth; and while that State was last year almost the banner one for honey, it is mourning with the rest for the nectar that did not come.

Another State where there has been a drouth, at least in some sections, is Vermont, and the conditions there are about the same as in Missouri.

Most of the bee-keepers in New York report a backward and unfavorable season—no lack of clover, but the same old story—too wet and too cold for the bees to work. This is largely true of Wisconsin and Minnesota.

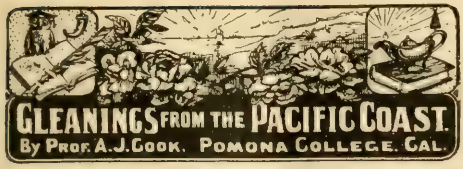
If there is any State that seems to offer encouragement for honey it is Michigan. Nearly all of those who have reported from that State speak favorably or at least not unfavorably of the season. Possibly the proximity to large bodies of water around the Peninsular State has had much to do with tempering the atmosphere.

In parts of Ohio the season started out magnificently. At our outyards I never saw bees work better for four or five days, when they could do any thing at all; but just as soon as we began to give them room it rained, turned cold, and we have had cold north winds ever since. It has begun to warm up again, and if it continues the fine beds of clover still in bloom will fill our hives to repletion. Ohio will rank well with Michigan.

The conditions throughout the clover belt may be summarized somewhat as follows:

There is an unusual amount of white, red, and peavine clover, and a heavy growth of sweet clover, which may materialize for the bees in late summer. I think there never was a year when there was so much of white and red clover reported as this season. Certainly I have never seen so much during the short trips I have made throughout the country on the automobile. While, apparently, there will not be a heavy crop, this presages well for the next season, and possibly for several years to come. After clover has attained such a strong growth it would be a very severe drouth that would affect it seriously next year.

We shall be glad to have our subscribers continue to send in postal-card reports giving the latest from their locality. The value and accuracy of these general crop reports in these columns will depend upon the number of them received. Before you forget it fill out a postal *now* and address it to GLEANINGS, Medina, O.



GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

THE BEE'S POCKET HANDKERCHIEF.

In the previous issue of GLEANINGS I discussed the stomach mouth. We saw how interesting was the action of this little organ, and how effective in removing pollen from honey. To-day I am to consider the nose and pocket handkerchief of the bee. I hope, Mr. Editor, this will not trouble you, in that you will think you ought to put a new subject in the A B C, as I am sure one would look in vain for either nose or pocket handkerchief in your admirable work which is really almost cyclopedic. While I presume the eyes of the bee aid them in their quest in field in forest, yet I have reason to believe that the eyes are not very sensitive. Without doubt, smell is much more to the purpose in guiding the bees to the nectar. It is probable, also, that the drones are quickly guided to the queen as she flies forth to mate, by this same sense. And where is the nose? There can be no doubt that it lies in the antennæ. We might say, then, that the bee has two noses, and so does not differ greatly from higher animals, as even we have two olfactory openings which are absolutely separate. The mechanism of these olfactory organs in bees is easily studied by the use of the microscope. We find, upon close examination, that there are many little pits in the antennæ of insects; and in those insects where the sense of smell is very necessary, and thus supposedly very acute, as in the case of bees and moths, there may be a thousand of these little pits. These pits are lined with a very delicate membrane, which is evidently the scent membrane. At the bottom of these pits are little pegs, which, of course, increase the spread of membrane. Thus each of these little pits, tubes, or wells closely resembles a common form of glass bottle which must be familiar to all our readers.

In such bottles the bottom is pushed up so that there is a hole or concavity at the bottom on the outside. The drones and male moths have many more of these scent-cells than do the others. This accounts for the fact that a female moth just from the cocoon often attracts scores of males into a room, although the window may be up hardly at all. That these antennæ are scent-organs is clearly proved by the fact that the blow-fly, when these are cut off, can not find the meat. Many like experiments leave no room for doubt. Once proved that the antennæ are scent-organs, there can no longer be doubt that the numerous pores, or pits, each with its pegs at the bottom, are really the organs of this special sense. Thus, as we now understand where the nose or noses of the bee are located, it is next in order to examine how this organ is kept clean, or where the pocket handkerchief is, that the bee must use to keep its scent organs in perfect order. We can easily see how the bee, diving into the flower-tube, would get its antennæ smeared with pollen, and so how its sense of smell would become dulled. Surely no animal would stand more in need of a pocket handkerchief.

THE ANTENNÆ-CLEANER.

The antennæ-cleaner on the front leg of nearly all hymenopterous insects (wasps, bees, etc.) is a strangely interesting apparatus. It is really in part a half-circle or half-cylinder, situated in the basal tarsus, and lined with very delicate hairs. This groove is just large enough to hold the antennæ. Shutting over this is the tibial spur, which is hinged, and, on the side next the groove, consists of very delicate membrane, softer than the finest chamois skin.

Let us now study the cleaning process. Those curious to see just how it is done have only to put a bee on the window, dust its antennæ with chalk or flour, and watch it with a good hand lens. The soiled antenna is pushed into the groove, pressed down by the spur, and drawn out. Of course, all pollen and dust are removed, and we may say the nose is wiped. But we must remember that this pollen is bread to the bees, and must not be wasted. If we examine the tarsi of the middle legs (by "*tarsi*" we mean the five last joints or pieces of the legs) we shall find, on the inside, brushes of hairs. After the antennæ-cleaner is used, it in turn is drawn between these brushes of the middle legs, which, in turn, receive the pollen. These are then wiped off on the corbicula, or pollen-basket, of the hind legs. So the pollen goes from antennæ to all the legs successively till it reaches the pollen-basket of the hind legs, where, with other pollen combed from hairs of the body, it is packed and carried to the hive.

The mud-wasps have a similar apparatus, as do most insects of the order *Hymenoptera.* In the case of mud-wasps, as they are delving in the dust for mud their antennæ become soiled with dust—a useless material. They remove it as did the bee the pollen; but it is no longer of use, and their only desire is to clean the antennæ-cleaner. Those of us who remember our sticky fingers in the candy days will know just how the wasp performs. She opens her mouth, passes the antennæ-cleaner between her lips, wipes off the dust, and then spits it forth, for it is dirt.

FUNGI AND BACTERIA.

California is no exception among the States of the country in being very much interested practically in two very serious plant diseases. As both of these diseases affect the bee-keeper, surely our readers will be glad to know something of them. I refer to the asparagus-rust fungus and to pear-blight. The former disease has destroyed very valuable property east as well as in California in the last few years. While the pear-blight has ruined thousands of dollars' worth of orchards in the San Joaquin Valley; and as it has now pushed up into the Sacramento Valley, the end is not yet. Our readers have already heard how the bees are instrumental in spreading pear-blight. Yet it is to be said that, even in this case, the bees are more to be desired than condemned; for, while the bees are absolutely necessary for proper pollination, even of the pear, yet other nectar-loving insects are sufficient in number to scatter the pear-blight, and would do it effectually, even though there were no honey-bees at all.

The asparagus-rust came from Europe, where it is far less serious than in America. It devastated in the East first about 1896. It spread so rapidly that in 1900 it had invaded California, where it has worked fearful havoc. Asparagus grows remarkably in California, and who of us does not know of the excellence of canned asparagus? So this question of asparagus-rust is one of great economic importance. Like the wheat-rust, the asparagus-rust has three forms—the early-cluster cup stage; the æcidium stage, which, in the case of the wheat-rust, works on barberry, here works on the asparagus. This is inconspicuous. The summer stage, uredo, carries red spores, and so colors the asparagus, as it does the wheat, a red color. These red spores are carried easily and to great distances, and so scatter the disease, even carrying it across our country in a few years. As this does the principal scattering, it is, perhaps, the most serious stage, though the mycelial threads in all three stages penetrate the tissues and kill the plants. The third stage, teleuto, is black, and comes in late autumn. This is hardy, and carries the plant through the winter. The spores also enter the plant from the ground. Professor Smith, of our State University, has published a valuable bulletin, No. 165, in which he gives the results of his researches. He finds that the red spores can develop only in moisture, and so a very dry atmosphere is safe against this plague. This explains why plants underneath trees are free from the fell disease. He shows that, in case of asparagus, the black spores, where the asparagus is cut and the ground well tilled, do not get a hold. If, then, all other asparagus-plants are kept away, the disease would be less in evidence. The practical point, then, is to allow no asparagus-plants to grow except those in cultivation. Professor Smith also finds that sulphur is a specific against this rust. Here, then, we have a case where scientific research saves to us one of our most important industries, and one of our most succulent and appetizing food-plants. The bee-keeper will be interested to know that bees gather this rust in lieu of pollen, as the spores furnish them their proteid food.

COLD VERSUS HONEY.

We have been having very cool weather. With the exception of a very few days, when the honey came rushing in, the days have been so cool that the bees were loath to fly and the flowers too chilled to secrete much nectar. It is now warming up, and we hope that June will show up better.

GENERAL
CORRESPONDENCE.

RED-CLOVER BEES.

A Word of Defense from H. Freudenstein, Publisher of the "Neue Bienen-Zeitung," Marburg, Germany.

Translated from the *Bienen-Vater*, Vienna, Austria, by Frank Benton, U. S. Department of Agriculture, Washington, D. C.

How times change! A few years ago I was a welcome guest in the bee papers. When I sent an article it was accepted and paid for. But since I have been publishing the *Neue Bienenzeitung* not a good word is to be found about me in the papers; on the other hand, attacks in nearly every number, particularly on the subject of the sugar swindle and the swindle with long-tongued bees. If I attempt to defend myself against these, my articles are not accepted. In the beginning this aroused me greatly. But I have become quite used to it. What those papers desired they did not succeed in, as daily experience shows. The *Neue Bienenzeitung* is succeeding well, notwithstanding, or perhaps even in consequence of, these attacks; and, for that matter, why does one, if he has a good conscience, need to be at all stirred up over such a thing, even though he may have been attacked on one side or the other as a humbug? He has simply to keep still and wait until the sky clears, and then only those who have raised the false accusation will have to bear the blame of it. A thing which in itself is good can not be easily suppressed by such means, but, on the other hand, such attacks are a fire which purifies and which also blazes up and draws attention to the subject.

Two articles directed against me have appeared in the Vienna *Bienen-Vater*. But the *Bienen-Vater* appears to differ most remarkably from other papers in that it has, without my having suggested the plan at all, requested me to answer these articles. I shall do this by answering the question: What is there really to this subject of long-tongued bees?

If we take a look at our various races of domestic animals we find that they have nothing at all—a member, a hair, a feather, which does not show the greatest differences.

And out in the garden among the flowers and other plants the same variations are seen. These differences of the races and varieties did not always exist; with wild animals and reptiles we do not find them to the same degree; they have been produced by man through selection in breeding.

Through selection in breeding, man has produced such animals as he needs — light fast horses for the saddle, heavy ones for drawing freight-wagons; cows which far exceed in yield of milk their ancestors, sheep with the finest wool for the manufacture of cloth, and sheep which give a less quantity of wool but a correspondingly greater yield of meat for the butcher, etc.

By the side of these breeds for practical purposes there have been produced through selection by man races whose usefulness is very small, but which, by reason of their abnormity or beauty, etc., find fanciers; such are the so-called fancy breeds—ponies, bantams, dwarfed dogs, peafowls, peafowl pigeons, etc. Such extremes as man can breed, as are shown by our domestic bees, nature does not produce. Milch cows with such large heavy udders would, in a wild state, soon fall a prey to bears and wolves; such a breed would, therefore, not preserve itself. And how could such dwarfed dogs as we possess secure food in the wild condition?

What I wish to show by all this is that, through selection in the breeding of animals, man can change very materially every member, and thus suitably mold the animals to his purposes and to his aims in breeding. Thus Darwin said: "State a quality which you desire, and I will breed it in the animal in question. That certain limits exist in this connection is to be understood."

For centuries bees have been domestic animals, but up to recent times there has been followed by man no definite system of selection in their breeding. Man has taken the bee always just as it came from the hand of nature. Indeed, in recent times he has even hindered nature in bringing about, by means of natural selection, the adaptation of the race of bees to their changed conditions. I should like, first of all, to show this here. In our forests the soft-wood trees yielding honey (willow, alders, lindens) are being cut away, and the heath plains are being planted to trees. In the fields, in the place of honey-producing crimson, white, and esparcet clover, there is continually appearing the red clover from which bees get honey only under especially favorable circumstances, thus from year to year the harvest becomes less.

But among bees there are undoubtedly strains which, under these unfavorable conditions, are better honey-producers than others. Were nature to rule undisturbed, then all of those strains would be destroyed, which from any cause whatever were not able, under these unfavorable conditions, to collect the necessary surplus, and only those would remain which could get together for themselves the needed stores. Thus nature would plainly and surely practice selection in breeding. But along comes the bee-keeper and feeds the colonies which are too light in the autumn, and thus prevents nature from adapting through natural selection our bees to the changed conditions of pasturage. Thus from being a useful race which brings in something, our bees must be changed more and more into a fancy race which must be supported by the bee-keeper.

In a similarly thoughtless manner straw-hive bee-keeping has been followed for centuries. In the autumn all hives which had not swarmed, and were thus the heaviest in honey, were sulphured. In this way our heath bee, this swarmer and waster of honey, the worst of all races of bees, has been produced.

These facts, which are wholly unassailable, have pushed forward in my mind the question whether and how this matter might be helped.

I have already mentioned that, with us, in place of the rich honey-producing crimson, white, and esparcet clovers, red clover is continually appearing, in which the nectar remains so deep down that the bees are able only under especially favorable conditions to suck up a portion of the rich treasures. There are only two ways possible — either we must raise red clover with shorter corolla-tubes, or bees with longer tongues. We can, however, follow both ways.

When we consider what plant-breeders have done — how they have been able to change materially all the parts of a plant, we are no longer, even for a moment, in doubt as to their ability to breed with certainty a red clover which shall meet our requirements. But these would help us less than would the long-tongued bees — first, because such a clover would be dearer than the common clover; second, it would be just as difficult, or even more difficult, to continue to cultivate this clover in its purity than it would a long-tongued race of bees; third, bee-keepers, who usually do not possess much land, would be dependent upon the good will of the farmers; and, fourth, long-tongued bees would not only be able to visit the red clover but also many other plants with deep-located nectaries.

Therefore the second way would surely be the better. We are not at all prevented, however, from doing both ways, and in order to prove that I do not wish to hinder, but, on the other hand, to further the matter, I herewith offer a prize of one thousand marks for the breeding of a variety of red clover which will be visited by honey-bees. The exact conditions of this offer I will make known in my *Neue Bienenzeitung*.

If, then, I held the breeding of long-tongued bees as a thing particularly worthy of being undertaken, then I must, above all things, seek for bees which nature had endowed with longer tongues than others, for it has always been clear to me that I could not succeed in getting long-tongued bees by merely letting the bees sip up honey through a wire cloth and thus oblige them to stretch out their tongues, as has been attributed to me by various apiarian journals.

But some years ago the news spread through the German bee journals that in America they had bred long-tongued bees which worked on red clover. Such a queen was said to cost one thousand marks, and Mr. Freyhoff, my greatest opposer, expressed the view that, for those who desired to possess such queens, there remained nothing further than to dig right deeply down into their pockets. Well, the tide changed, and long-tongued bees were scoffed at and termed an American humbug.

The people who wrote this had never seen such bees, nor could they form any opinion of a man who, on the basis of his actual experience, could express such unfavorable views. I could, therefore, set this down as merely efforts on their part to wag their tongues wisely. Why should it not be possible to breed long-tongued bees? Breeders of animals have done much greater things than this. I resolved, therefore, to investigate the matter thoroughly, hence procured the addresses of American breeders and ordered queens. The test of these could not be conducted at one place only. It is well known that plants which are very productive of honey in one place, as, for example, linden and locust trees, at other places do not produce honey at all, or only a very poor quality. Thus, here in Marburg the celebrated linden honey is of a miserable quality. With the red clover such a condition would have to be taken into account, particularly since, in the case of this plant, the nectar is very deep down in the corolla, and even under the most favorable condition only a part of it can be obtained. In this case, therefore, the variations of soil and climate, which are of such importance in the secretion of nectar, must be taken into account particularly, hence the test of the American bees could not be confined to one place alone. It needed to be carried out in as many places as possible. Therefore I offered queens to other bee-keepers; and as I am only a poor little schoolmaster I could not give away the queens, but was obliged to put a price upon them.

ARTIFICIAL INCREASE.

Prevention of Swarming With and Without Increase and Production of Comb Honey. An Excellent Review of the Subject.

BY L. STACHELHAUSEN.

The prevention of natural swarms is a problem for every bee-keeper who has a number of out-apiaries, especially if comb honey is produced. Lately different plans for this purpose were published, and claimed as new systems of management.

According to localities, these managements must be different, depending on the time when bees would swarm naturally, and when the main honey-flow commences. In my locality, in most years at least, the swarming-time is four or more weeks before the main honey-flow, consequently the prevention of swarming is quite another operation from the preparing of a colony for the best condition for storing honey in sections. In other localities these two operations can be combined, because the swarming-time is just before or at beginning of the main honey-flow.

For prevention of swarming we have different ways. The first one is to use large hives (double deckers), in which the brood-nest can be expanded in every direction, and the queen is never crowded. In many localities swarming can be prevented entirely in this way. In other localities it is delayed for some weeks at least. If this is not sufficient, another way is to take from the colony some brood, preferably capped brood, or some bees. With this material taken from several colonies we must form new swarms, if we have no other place to use it profitably.

The taking away of brood-combs, and replacing them with frames of foundation or empty combs, is simple enough, and every bee-keeper knows how to do it.

The critical point is the way in which we take some worker-bees from a colony. I know of three different ways.

1. We shake or brush the bees from some or all the brood-combs (shook swarms).

2. We draw some bees from a colony (1) by setting a new hive on the stand of this colony and removing colony 1 to a new stand. We will call such swarms "flight swarms" till somebody finds a better name.

3. We draw some bees from a colony by the following operation: A hive-body with some brood-combs is placed on top of a colony over a queen-excluder. In a few hours these brood-combs will be covered with mostly young bees; the hive-body is removed, and so some young bees are drawn from the colony (drawn swarms).

All these three ways have advantages and disadvantages. Further, we have some variations whether we give to the new swarm more or less brood-combs; further, the swarm can get a young or the old queen from the hive from which the bees are taken, or no queen at all, and so may be forced to raise a queen from the brood given to it. According to these differences the swarm as well as the parent colony must be managed differently. It is plain that many combinations of these different operations are possible, but no part of it will be new.

In respect to "drawn swarms" I will remark that sometimes it is desirable to form a colony with capped brood only for the purpose of having it hopelessly queenless. This can easily be performed by this operation, if the brood-combs remain over the excluder for nine or ten days. I have used this plan for many years for preparing colonies for cell-building. As soon as the cells are started, the hive-body with the brood-combs is set back on the excluder.

By the "shook-swarm" plan it is not necessary that we take the bees from a single colony. We can shake them from combs out of different colonies or we can gather some bees hanging out in front of some strong colonies, or in any other way (gathered swarms).

To prevent swarming without increase we have different ways again. One of the most interesting is the following: Hunt out the queen and place her with one or two brood-combs in a new hive. Fill this hive with frames of foundation or with empty combs, and set it on the old stand. On top of it place a queen-excluder and over it all the other brood-combs. This plan is a sure preventive of swarming. In some localities it may be necessary to go through the operation a second time; but for comb-honey production it is not practicable. I have not read an explanation of this fact as yet, and will give one here: If a queen-excluder is used, and we have brood on both sides of it we divide the colony practically in two to a certain degree. That the queenless part of this division will raise a queen is proof enough that practically such a division takes place. In the case we have in consideration we have, in fact, made a "flight swarm" and have set the parent colony on top of it over the excluder.

Some other plans to prevent swarming without increase are based on the principle of making artificial swarms as soon as queen-cells are started, and to unite again when the danger of swarming is over. We can divide one colony into two, and afterward unite them again; but we can just as well make the swarm by the help of more colonies than one, and unite any two colonies afterward for this purpose.

This dividing and uniting afterward of a colony can be done in different ways. The principle is, that one part of the colony with most or all of the brood-combs is weakened so much in bees that the queen-cells are destroyed; now both colonies can be united again. By all these different combinations that part of the colony with the most brood is removed to a new stand. Sometimes it may happen that, in this part of the colony, the eggs are removed from the cells, and a part or all the open brood starved to death. This is caused by the fact that the bees are not able to prepare larval food without water. The proper remedy is, to give to such colonies, when they are formed, a comb filled with water. This is sufficient till some of the young bees fly out and return to this colony. This was known long ago; nevertheless, this point is generally not mentioned if this manipulation is described. The reason is, that this manipulation is generally done during a honey-flow, and then enough thin honey is in the hive, and this watering is not necessary.

Quite another problem it was for me to have my colonies in proper condition for storing honey in the sections at the right time. I had no trouble in preventing swarming by the use of large hives; and if this was not sufficient in some years I made artificial colonies with plenty of bees, a full set of brood-combs, and a fertile queen, so they were working colonies right at once, the same as any old colony. This had to be done before the main honey-flow commenced; but now with the honey-flow the difficulty arose. In these hives with large brood-chambers the colonies were not in good condition for section work. I never thought of using smaller hives, because I knew the disadvantages of them for development in spring, especially in my locality. I had made the observation that strong swarms, hived just at the beginning of the honey-flow, could easily be induced to commence the work in the sections at once. Such swarms had given me the most honey; in fact, I never could get much comb honey in sections from any colony except from such swarms. Sometimes I united two or more natural swarms and got a fair crop of comb honey from them.

The only difficulty with these swarms was that they got weaker every day during the first three weeks by losing some field bees, and because no young bees were added to the working force. At the same time an increasing number of young bees were necessary for the swarm to nourish the increasing brood. It was plain to me the swarm should get some young bees occasionally to make up the loss of worker bees during the first three weeks. It was easy enough to make the swarm artificially by any one of the ways described in this article, but how add some bees to the swarm? Heddon's plan to prevent after-swarms has given me a hint how it can be done, and I believe I was the first one who recommended this jumping-over of the parent colony several times till all the bees are drawn to the swarm. But even then I can not claim any thing new, because the operation is nothing but Heddon's plan extended for a longer period of time, and to the finish of this colony. This plan of comb-honey production was called the "shook-swarm system." This is somewhat misleading, because it makes no difference at all how the swarm is formed. We can just as well use a natural swarm; we can use two colonies if we want a very strong swarm, or we can make the swarm in any other way. In fact, I have used different ways to form these swarms, and had very good reason to prefer the shaking. By jumping we can draw the bees from the parent colony, which had given the bees for the swarm or from any other colony, if more convenient. This would need a little different manipulation, but otherwise would make no difference. The principle is to make an artificial swarm and afterward strengthen it about once every week by adding more bees. There are some other ways to strengthen this colony with bees, possibly some of them even better. Colonies manipulated in this way will not swarm. The swarming-time in some localities is just at the beginning of the main honey-flow. In this case the two purposes named above are attained by one and the same operation.

Converse, Texas.

[I have been quite interested in reading your excellent review of the different methods for the prevention of swarming, with and without increase. The plan of jumping one hive over another to catch the flying bees in another hive, *a la* Sibbald, is not new by any means, except in detail. Langstroth himself, in the early editions of his book, describes the main principle of this plan; and the senior editor of this journal tried it after Langstroth's instructions about thirty years ago. You do not state, friend S., whether you had any difficulty about the bees finding their old entrances, as was mentioned editorially in our last issue; neither do you mention the labor of jumping one hive over another. Taking it all it all I am just now inclined toward the brushed or shaken swarm plan as originally announced by you.—ED.]

FOUL BROOD.

How to Secure a Surplus of Honey from a Colony of Bees Having this Dread Disease.

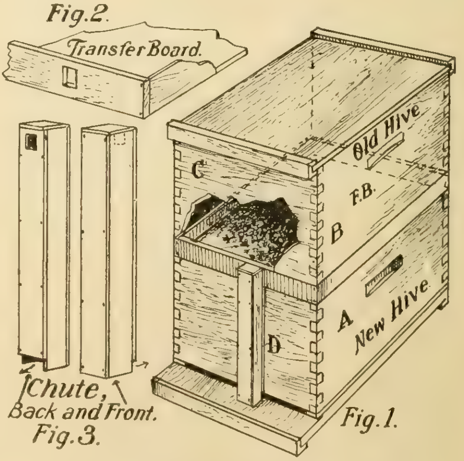
BY HARRY W. CRAVEN.

A great many bee-keepers all over the country, when first they discover foul brood in their apiaries, hold up their hands in horror because of the dread disease which makes such havoc with the busy little workers. Some of our largest apiculturists, who have vague ideas of foul brood as meaning utter loss of profits and sometimes their livelihood for one year, when they discern the dread disease in their yards commence to cure the disease at any cost when there is absolutely no need of it.

While working last summer on one of the large bee-ranches of Colorado, where foul brood is almost synonymous with healthy brood, I found a very effective and practical method by which the bee-keepers of that section made large profits from their foul-broody colonies. I will try to tell as best I can how it is done.

Let us start in the spring when the bees commence to fly out, say about the middle of April. At that time the examination of colonies is under way for feeding and weeding out the foul-brood hives to be treated later. Now comes the honey-flow. The hives of foul brood, when first discovered, have been marked "F. B." and date of the discovery affixed. Before starting with an operation let us first of all provide ourselves with the following apparatus: First we need a nice clean hive with frames of starters; then we obtain what is known as a transfer-board. It is nothing more than a shallow wooden tray, which will fit either an eight-frame or a ten-frame hive. Fig. 2 shows it, and it is very easily made with $\frac{7}{8}$ strips for the sides, and $\frac{3}{8}$ stuff for the floor. After the transfer-board we get pieces of lath and make a chute, the length of the chute depending on the distance of the hole in the transfer-board when put on the new hive, and a snug fit to the alighting-board. Fig. 3 shows the chute and how it is made. Please take careful notice of it, for it is a most important factor in the operation, and, last of all, we shall have to have a queen-cage, for the queen must be confined for 48 hours.

Now we have come to the operating-table. Let us begin by first finding the true foul brood—no guesswork about it as to whether it is chilled, black, or pickle brood. When we are sure we have the real thing we go and bring the new hive with starters, also the other necessities that go with the hive, and place them within convenient reach. Then we commence in earnest. We search out the queen of the foul-brood colony and cage her, putting the cage and the queen on the bottom-bar of the middle frame of the new hive. After we have done this we remove the old hive and put the new hive in its place. We now put the transfer-board on and make sure that it is bee-tight. Then we take the foul-brood hive and put it on the transfer-board, and again see to it that Mistress Bee does not have an ingress or an egress to the top hive. Next we take up the operation of shaking the bees from the foul-brood combs before the new hive with the queen caged in it. We, however, leave a small per cent of bees in the upper hive so that the brood will all be hatched and well taken care of.



HIVE PREPARED FOR FOUL BROOD.

As the bees in the foul-brood hive hatch out they enter the chute through the hole in the transfer-board, and come out of the chute from the inside, or with their heads turned toward the entrance of the lower hive. Coming back with new honey they enter the regular entrance, and go to swell the force of workers in the field.

We are all ready for putting on the chute now. We put on the chute so that the hole in it and the hole in the transfer-board will come together, and care must be taken that they do, or else the bees that will be hatched out from the foul-brood combs will perish, thereby causing a loss of bees to the force below. When we first put on the chute it is always best to close it up for a few hours or until the bees have quieted down, for sometimes the bees that are left in the upper hive call their comrades, and we have to do the shaking all over again.

Now as to the snug fit to the alighting-board of the chute. If we did not fit it close, I have found sometimes that the bees, when they came out, have found their way back up the chute and have gone to work and raised another queen, thereby nullifying all our work as to getting the bees into one hive and strong enough to gather a surplus of honey during the summer. We can make this close fit by making the opening at the lower end of the chute on an angle so that one straight edge will come tight to the alighting-board, while the other straight edge will have a ⅜ beeway. Fig. 1 will show what is meant. The last thing to be done with the whole operation is removing the foul-brood hive after the brood has hatched out. You must be careful in removing or you will find to your sorrow that you will have all your troubles over again next season, and perhaps more of it.

In closing let me impress on your mind to have the upper hive bee-tight, for it is from there we get all our trouble. We cage the queen so that she may not abscond with the swarm, which has been known to happen more than once. It gives the bees time to build down the comb, and by the time the queen is at liberty she has plenty of room to deposit her eggs, and is perfectly content to stay.

This is the plan as I saw it, and practiced last summer, and is being practiced by the large bee-men of Colorado with good results. While it can not be said that it is infallible in curing or absolutely abolishing foul brood, it can be said that, in about 75 per cent of cases, it does cure, and is far more effective when it comes to raising surplus honey from foul-brood colonies. I can also say that it would be far more effective in curing foul brood if there were not so much carelessness in operation.

Another plan practiced by one of the largest comb-honey producers of Colorado for curbing foul-brood and working the bees for surplus is as follows: Take from two to five colonies infected with foul brood, shake them out, first caging the queen, before new hives on their old stands. Now take the old hives and stack them on top of another, as many as you please. Inside of 21 days shake out the two, three, four, or say five hives before a clean hive with a new queen caged in the hive, and you have an increase. This plan does not appeal to me, for it does not give greatest possible strength in bees for the gathering of surplus during the honey-flow.

Evanston, Ill.

[This I consider to be a very valuable contribution to our bee-lore, and I respectfully recommend it to those of our readers who are afflicted with foul brood, and yet desire to secure a crop just the same.

The plan is somewhat similar to the one advocated by M. M. Baldridge some seven or eight years ago; but instead of using a transfer-board and a chute he recommended an ordinary escape-board through which the young bees, as fast as they hatched, passed into the lower hive. But the chute and transfer-board, as above described, has an advantage over the Baldridge plan in that the bees do not immediately desert the brood. Unless it is warm weather the old bees as well the young ones will sooner or later (probably "sooner") go through the bee-escape into the lower hive. But the Colorado plan, with transfer-board and chute, provides that the brood shall not be deserted until the bees are of a flying age. By that time the brood will probably have all hatched out, and the result will be there will be no chilled brood along with the regular foul brood.

I am not sure but the supply-manufacturers ought to supply these outfits. If there should be a call for them they undoubtedly would. They should be well made, and exact, as our correspondent points out.

One thing more should be mentioned, and that is, the side of the chute through which the bees escape should be *toward the hive;* that is to say, the bees, when ready to fly, escape into the new hive below; and when they desire to pass outward they fly from the entrance toward which they will naturally return, joining their fellows in the lower hive.

In the third paragraph our correspondent conveys the impression that the transfer-board and chute is not applied to the infected hive *until* the honey-flow. It would seem to me to be better to commence operations *before* that time, so that the entire force would be available and ready at the time of putting the supers on the lower hive, which would now have combs drawn out below, and the queen at work.—ED.]

PERTINENT REMARKS ON SHAKEN SWARMS.

Fifteen Minutes a Colony all the Time Needed. A new Scheme of Shaking.

BY E. S. MILLER.

In your explanation of "shook" swarming, page 528, it seems to me you miss some of the points essential to success, and emphasize others not so important. Here is a better way.

If your colony is very strong, first tack a piece of Tinker zinc over the entrance. Provide yourself with a heavy cloth or canvas—a grain-sack is all right—and a hive filled with empty combs or frames with starters. Remove the super and throw the canvas over the top of the hive to keep the bees in. Next, roll back the cloth from one side, and smoke down as you remove each frame of brood, and replace it with an empty comb, shaking and brushing the bees *back into the hive.* Don't let the bees boil over the top of the hive, or you may lose the queen. Don't shake them out into the grass in front of the hive—that's unnecessary; but keep the queen in the hive where she belongs. Be sure that the bees fill themselves before you remove the brood, and be sure to remove *all* the brood from the old hive and *all* the bees from the brood. This is important.

After the exchange of frames is made, replace the super, and then, with the brood, build up the nuclei which you have previously started, giving each nucleus only as much brood as the bees can care for. Time of operation, fifteen minutes. Results, the swarming fever is effectually broken up for the season. No second shaking, puttering around, no after-examination to see if they are going to swarm. The job is done. The old colony is strong; it has all the bees and a laying queen. The new colony can be built up to any desired strength without danger of swarming if plenty of room is given. After the nucleus is built up to ten frames, put on a queen-excluder and add another ten frames of brood. If you have not any nuclei started, then use Alexander's plan, page 425, which, by the way, is worthy of more consideration than it has received.

Will the bees abscond? No, not if the conditions within the hive are all right. It is these conditions, not the manner of getting them into the hive, that determine whether or not the bees will be contented. Remember these things: The bees must be filled with honey before the brood is removed. Bees don't like to see daylight through the top of the hive. Make it tight, Dr. Miller notwithstanding, page 523. Bees don't like to be tampered with after being once settled in their new quarters. Leave them alone for at least three days, or leave the zinc over the entrance.

In respect to Alexander's idea, page 425, I will say that I believe it will prove exceedingly valuable. I am testing it this summer with 125 colonies. I would, however, modify Mr. Alexander's method in one particular; and that is, instead of putting the new hive below, I would remove frames as in shaking, and put the new hive with brood above for the following reasons:

1. It requires less work; 2. It obviates the necessity for hunting the queen, which is no easy or pleasant task with a hive full of bees. I have found that sometimes, even with strong colonies, violent robbing takes place before the bees have had time to adjust themselves to their new surroundings.

Valparaiso, Ind.

[There are several modifications of the shake-swarm plan. I believe the one you recommend is feasible and practicable. I have seen Coggshall and his men during extracting time shake the combs right in the hives. I had supposed the bees would pile up enough in the bottom of the hive to interfere with shaking; but I noticed they did not—ED.]

WAX-PRODUCTION IN CUBA.

Frames Spaced Far Apart so as to Give More Wax with the Cappings.

BY LESLIE BURR.

Wax is just as important a product to the Cuban bee-keeper as honey; and with the idea in view of producing just as much wax as possible I will take you through a season of Cuban bee-keeping.

The principal honey-flowers begin about November 1, and last till along in February. Through this flow I practice just as wide spacing as the strength of the colony will permit. The strongest can be spaced seven combs to a ten-frame super. With this wide spacing the bees will build comb clear up over the top-bar.

In uncapping, remember you are after wax, so have the lower edge of the knife dull to cut the wax from the top-bar with, and cut the comb down even with the top and bottom bars. I may also add that strong frames are wanted, and that, after you run across one frame with metal spacers under half an inch of wax, you do not want any more. In March, April, and May is the spring flow. The bees begin to breed, and, if nothing is done, swarming begins.

Now put on the queen-excluders; cut out half or two-thirds of the combs above, and replace the empty frames. At this time of the year the bees are anxious to rear drones; and as they have none, about all of the comb built will be drone; and as they are expecting the queen to lay in it, it is left open. Now make the rounds every week or ten days, and knock out the drone comb and replace the frames in the strong colonies where there will be danger of swarming. Keep taking combs of brood from the brood-nest and put them above the excluder, replacing them with starters. Sometimes the bees will be kind enough to build full frames of worker combs. In such cases let them stay and keep putting the old combs above to hatch.

When the spring flow is over you have probably half a set of combs to the colony, so when the fall flow comes in August and September the bees have something to do besides swarming.

In having your combs built at this time of year, always use full sheets of foundation in the brood-nest, as you are now wanting nothing but worker comb below.

For the super, use starters. It makes little difference what the combs are above; but take care during the early part of the honey season to put the drone combs by themselves over colonies with excluders, taking the excluder off later when there is no danger of the queen going above, as a colony will plug a brood-nest far worse where there is an excluder between them and the super.

Now a word about starters and full sheets of foundation. When it is necessary to use a full sheet, do so; but when you use starters you are doing so to *save* foundation. Use half an inch—don't waste your foundation by putting in two inches.

Casanova, Cuba.

SUPERSEDING OUR OLD QUEENS.

Do Not Let the Bees Decide as to the Time for Doing This; a Novel Plan for Indicating the Age of Queen.

BY E. W. ALEXANDER.

To supersede our queens when two years old, or to leave it for the bees to attend to, is a question of far more importance than many realize, and one upon which I very decidedly differ with some of our best bee-keepers. Last fall we had 107 queens in our apiary that were 2½ years old. Therefore for many years we have superseded all our queens at 2 years of age; but as a part of these queens were some we had bought, and were of an extra good strain, their hives being well filled with honey, and as some writers on the subject had claimed that the bees knew better than we when to supersede their queens, I thought I would test this matter thoroughly on a large scale, even if it cost me the 107 colonies to do so.

THE RESULT OF THE EXPERIMENT.

We put our bees in the cellar about the middle of November. These colonies, with their queens 2½ years old, were put in with the other colonies here and there all through the lot, and had exactly the same chance as those with younger queens. When we took them from the cellar about the middle of April we found only eleven that had superseded their queens; and it had been done so late in the fall that 6 were drone-layers, and the other 5 were about as weak in bees as those with the old queen; and of the remaining 96, 3 were fairly good, 26 were very weak in bees, and the other 67 were dead.

In looking over our bees about Sept. 1 we noticed that these old queens had all stopped laying, and had but little brood compared with the young queens. This fact, undoubtedly, had much to do with the weak condition of the few that survived the winter.

Of the other 603 colonies in the same cellar, that had queens 6 months old and 1½ years old, only 7 were lost.

Now, my friends, can any of you say that it does not pay to keep track of the age of your queens, and attend to superseding them yourself? I am sure it has always paid me well, heretofore, to do so, and I do hope that this costly experiment that I have just made will save many of you from a like experience. As I have written before, it is so easy to get the best of young queens now that have been reared from extra good honey-gathering strains that we have no excuse whatever for keeping old inferior queens in our apiary; and I want to ask those of you who advocate letting their bees do their own superseding if it would not have been *much* better for me to supersede those 107 queens last summer, at an expense of about $65, than to lose at *least* $400 worth of bees in leaving it for the bees themselves to attend to.

KEEPING TRACK OF THE AGE AND QUALITY OF THE QUEENS.

In the August issue of the *Review*, 1904, is published an article I wrote on keeping track of the age and quality of our queens, which is well worth more than a year's subscription to some of you who take that paper; and for the benefit of those who take GLEANINGS only I will copy a part of said article:

"As we run all our bees now for extracted honey I will not take up any of the thousand and one different ways of producing comb honey. That is a trade of itself; neither will I enter into the many different ways of rearing choice queens, except what I have said in the above; but there is one thing which I wish to call your attention to, and that is this: Not one bee-keeper in 50 can tell me, as we walk through his apiary, the age and quality of every queen in the yard. This is one of the most essential things to know at all times if you expect to make a success of the business; and I have often wondered why some one has not given us a good practical way of knowing this before now. I used a book for this purpose, but often found it quite inconvenient to look over 200 or 300 pages to find what I wanted to know at a glance; so I adopted the following, which is very accurate, and tells me at once all I wish to know about the age and quality of every queen I have.

"TIN TAGS FOR SHOWING AGE AND QUALITY OF QUEENS.

"Something like 30 years ago I cut out a lot of pieces of tin — some round, some half round, and some square, about one inch in diameter; and whenever I find a young queen commencing to lay I put one of these tags on the front of the hive on the left-hand corner, about two inches from the bottom. It is put on with a carpet-tack through the center, and is easily taken off with my knife; and it follows that queen to every hive she is ever put into. If she proves to be a choice queen the tag is put a few inches higher up on the corner of the hive; and if very choice, still higher. If she is inferior in any way it is put over toward the middle of the hive; if very poor it is put clear over to the other side. I use only one shape of tag each summer, with all the queens of that summer's rearing. The next summer I use another shape, perhaps round or square; then when I walk through the apiary I can tell at a glance the age and quality of every queen in the yard; and then when I have surplus queens on hand I can go right to the hives that contain my poorest queens and supersede them at once without having to open any hive unnecessarily. You see I can tell at any time. I see by the fronts of the hives just how many queens I have of a certain age, also their quality. If you will adopt this way of keeping track of your queens you will soon weed out the poor ones, and find it a great advantage to you to do so."

There, friends, I almost beg of you to take my advice in this matter, and adopt some simple method whereby you can tell at a glance the age and quality of every queen in your apiary. It is not only a source of much satisfaction to know the real merit of all your queens when working among them, but I assure you it is also, from a dollar point of view, one of much importance.

In regard to the proper time to supersede, I must differ with those who recommend superseding in the fall. My principal reason for doing so is this: If the queen to be superseded (as is generally the case) is old, and beginning to fail in keeping her hive well filled with brood, then you stand a big chance of having a weak colony the following spring unless you give them a young queen before August 1. In this section even our young queens lay but little after Sept. 1, and certainly we should have a good prolific queen in every hive at least one month before the breeding season closes. But if you are superseding good queens that have kept their hives well filled with brood to the end of the season (simply to get a better strain of bees) *then* you can supersede your queens almost any time during the fall; otherwise I should very decidedly prefer superseding all my queens early in the season.

Now, my friends, think this matter over well; and in doing so remember that your next year's surplus depends to a great extent on the quality of the queens you have in your hives this coming fall. The man who is careless in this matter will have many disappointments that he might otherwise avoid with but little trouble and expense.

Now a few words to those who ask me many questions by letter. If you will send your questions to GLEANINGS or the *Review* I will try to answer them through those papers. During the last month I have answered one question in 63 different letters, and I certainly have not time to write the same thing over and over so often.

Delanson, N. Y.

[Mr. A. E. Manum, a well-known contributor to these columns some ten years ago, and who, at the time at least, was operating a series of outyards of some six hundred colonies, I think, stated most emphatically that he could not afford to keep a queen after she was two years old. Some disagreed with him at the time; but I think a majority of the practical honey-producers supported his contention.

The experiment recorded by our correspondent with 107 colonies is very interesting and valuable. What has cost him several hundred dollars is placed before our readers at the mere mere cost of reading, plus one twenty-fourth of a year's subscription. And, by the way, there are hundreds of good things in all the bee-papers. I think it was Mr. W. L. Coggshall, another bee-keeper whose colonies run up into the hundreds, said that he could not afford, busy as he was, to fail to go over carefully all the bee-journals, for he says he is constantly getting new ideas that mean to him dollars and dollars. This article alone, if carefully read, will be worth, perhaps, hundreds of dollars to other bee-keepers.

Very lately in these columns one or two writers have urged that, in their own practice, they supersede once every year, claiming that a queen six months or a year old would give results that a queen two years old would not; that any thing over two years old was never to be considered except as a breeder.—ED.]

PRIZE-WINNERS FOR THIS ISSUE.

Professional Men in the Ranks of Bee-keepers.

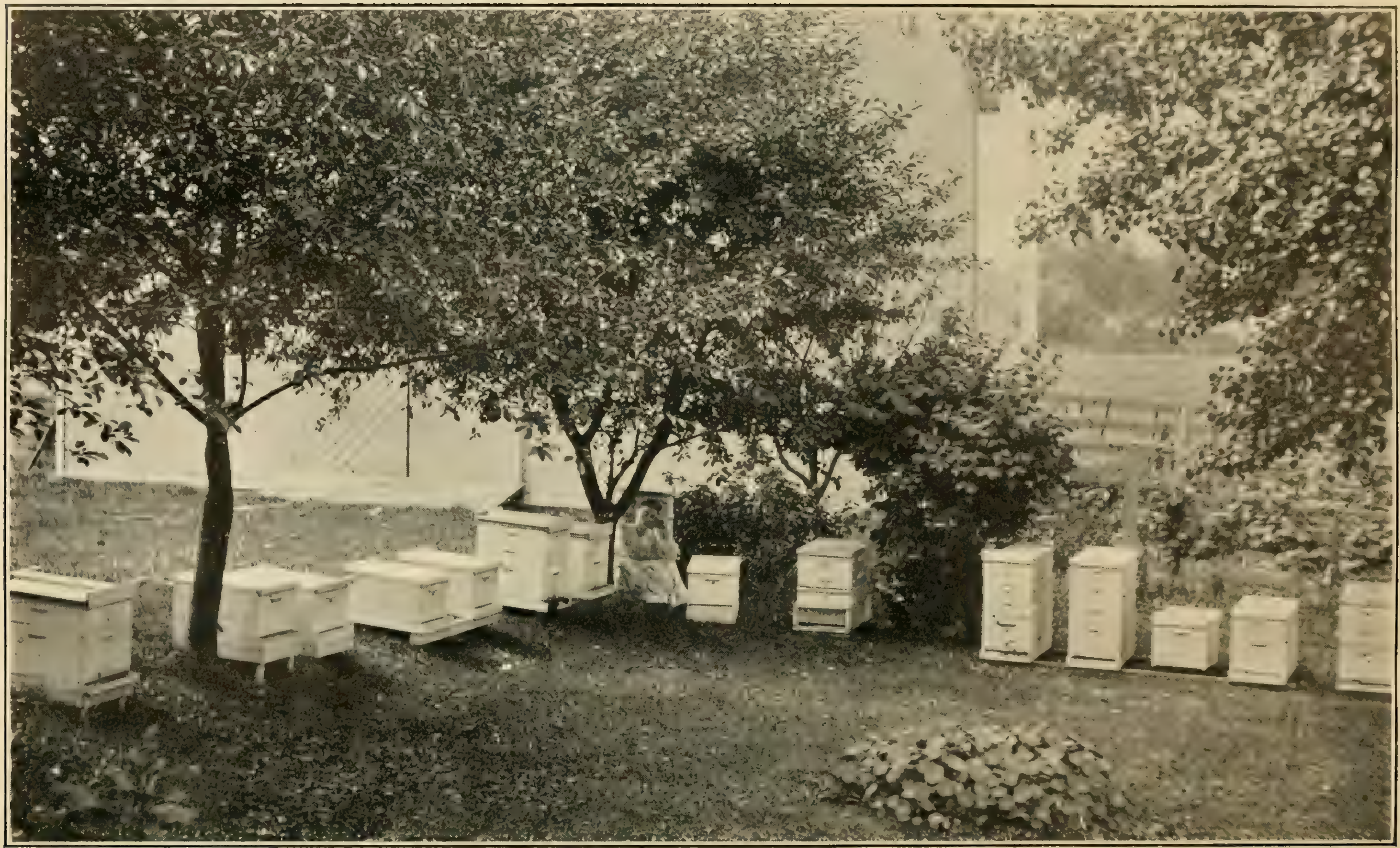
BY E. R. ROOT.

Mr. Charles G. Macklin, of Morrison, Ill., was the winner of the second prize for the view of the bee-yard here shown, in the late photo contest. He is one of the very numerous examples of professional men who have taken up bee-keeping as a side line — not alone for the money there may be in it, but primarily for the pleasure and recreation after business hours. He is an insurance agent by occupation, but has been keeping bees for three years, and now has an apiary of something like 100 colonies — a corner section of which appears in the accompanying photo—the winner of the second prize. It appears to be the back yard of an ordinary town or city lot. The grass is kept down with a lawn-mower, and ornamental shrubbery as well as fruit-trees are conveniently located for shade to the hives.

At the time of submitting the photo Mr. Macklin gave us no particulars; but in the absence of any statement I assume that "a better half" is the sharer in the recreation and pleasure afforded by the bees. Perhaps it is she who sits in the delightful shade of the tree where she can watch the busy workers bringing in what they suppose to be their own stores of mellifluous sweetness, but which in reality they are to share with her.

Where the rest of the hundred hives are located may be guessed. They may be in the two long rows diverging at right angles.

The addition of professional men to our ranks is and should be welcomed by the bread-and-butter bee-keeper, the one who keeps bees solely for the living he can get out of them, for it is these men of affairs, learning, and finance, with their political pull and influence who are able to get for us needed legislation to protect our interests. It is these men who are able to go before the big newspapers and magazines and secure denials of comb-honey lies. It is these men who add dignity and power to our conventions, and who enliven our bee-lore, not so much by their practical experience as by their enthusiasm that gives a new tone and life to the ordinary humdrum of bread-and-butter getting.



APIARY OF CHAS. G. MACKLIN, MORRISON, ILLS., WINNER OF SECOND PRIZE IN PHOTO CONTEST.

THE SECOND PRIZE, SWARM OF BEES.

The winner of the second prize for a swarm of bees is Mr. W. C. Naftel, of Naftel, Ala. I understand from the committee that the feature which gave this second place, or perhaps any place at all, was the Manum swarming-basket. The bees, it appears, have been dumped inside of the basket, the cover flipped in place, when the remaining bees that were not captured inside, but which may have taken wing, later clustered on the outside.

The Manum swarming arrangement does not require that *all* the bees should be secured inside of the wire-cloth cage. A half or two-thirds will be sufficient. If the cover is folded over in place, and the basket be poised in midair on its tripod, the remaining bees in the air will soon find the main cluster and cling to the outside. When all are in place the tripod is lifted, the two legs are pulled up against the main pole, the whole then balanced for easy carrying. On arriving at the hive the basket is slowly inverted by grasping the ring in the bottom of the cone of wire cloth. A quick jerk dislodges the bees on the ground in front of the hive, or better, perhaps, directly into the hive.

SWARM—BY W. C. NAFTEL, NAFTEL, ALA.

The view at the right shows how this particular swarm was finally dumped in front. The hive was pried up, and a board leaned up against the bottom-board. At the time the photo was taken the bees were in the act of crawling into the hive.

When a swarm is just dumped, the entrance should be as large as possible. If practicable, the hive-body should be tilted off from the bottom-board to give a large amount of ventilation, and should be left up until the bees cool off and begin housekeeping.

THE HOUSE-APIARY IN CUBA.

Some of its Advantages and Disadvantages in that Climate.

BY F. H. DE BECHE.

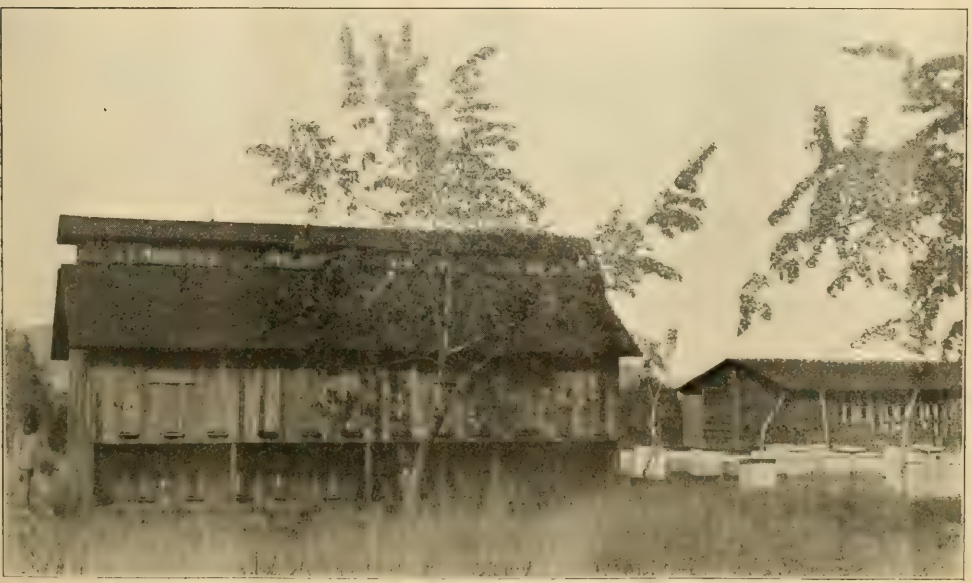
I send you herewith four pictures. They are not intended to compete for the GLEANINGS prize pictures, but I am sure you will be interested in looking at them.

The largest picture shows my home yard at Taco-Taco. It is located at the top of a small hill on the edge of the village, and you can see the roofs of its houses and the mountains in the background. The village of Taco-Taco is built in the lowest center part of that valley, on both sides of the Western Railway tracks which cross it. This general view of the apiary was taken about two and a half years ago. Some sticks of "guasimas" trees were then planted scattered amongst the hives to provide for shade later on. You can form an idea of the growth of this tree by looking at the two pictures of the house-apiary built on the same ground of this home yard. The smaller picture of this house-apiary was taken when it was just finished. You will notice that there is no tree planted on its side, and I planted at that time a small stick of "guasima" that was lying on the ground. It looks in this picture as if the boys thought that what I wanted to take was their picture instead of the house-apiary. The other picture of this house-apiary was taken a year later, and you will notice that the tree is rather taller than the house itself.

You may be interested in knowing something about this house-apiary, which perhaps will seem to you a strange thing here in this hot climate. It was built for experiment

DE BECHE'S HOME YARD AT TACO-TACO, CUBA.

purposes. It contains fifty hives—two rows on each side. To work the upper row you have to stand on the hives of the lower row, as can be easily seen from its construction shown in the picture. Our honey crop here takes place during the winter months, when most nights are very cold and day time hot. These very cold nights compel the bees to cluster in the lower stories, in some cases abandoning the upper stories entirely for a while, and the queens refrain from laying to their full capacity, not only on this account, but also from being overcrowded by the bees which store the honey in the lower stories. This is a very important matter to overcome, as our honey season lasts over six months, and if you do not look carefully into this matter you run the risk of your colonies becoming very weak in the midst of the honey season. The artificial heat you can create at night in the house-apiary overcomes the trouble of the queens not laying to their full capacity; and, although at times the colonies in the house-apiary had seven



DE BECHE'S CUBAN HOUSE-APIARY IN USE.

and eight frames of brood when those outside had only two and three, I must say that, taking all points into consideration, the two first years' experience with this house-apiary has not proved it to be a success. Comparing the result for the whole season of those fifty colonies in the house-apiary with a like number of similar ones located outside in the open air, those in the house-apiary, in spite of having had at times so much more brood, did not yield more honey than those located outside. The total yield of honey from both lots was about even. It remains against the house-apiary, the unhandiness in working bees and hives there; and the extreme heat in the house during the day time, in spite of same being provided with ventilation, makes it so uncomfortable to work in that the boys dislike to work in it, and take turns in working in the "oven," as the boys call the house-apiary. Taking, besides, into consideration the extra cost, I consider this house-apiary plan impracticable and unprofitable.

I send you also a picture showing a cart loading honey. I suppose you have seen so many pictures of honey being loaded that it will be of no interest to you; but this picture will show you the good nature of our oxen, and especially of this one particular one, which does not mind one of the boys lying on his back. This cart is somewhat different from the kind of carts generally used here. Its body can be tumbled down; and, while in this position, the back part of it touches the ground, which makes it easy for our heavy casks of honey to be rolled upon it.

DE BECHE'S HOUSE-APIARY JUST COMPLETED.

LOADING HONEY ON AN OX-CART IN CUBA.

While talking about our guasima-trees, I remember Mr. James Hilbert, Vidal Cruz, and some others say that it would be just the thing for section lumber. If the basswood supply runs out, as you fear, and it is a fact that guasima can take its place, there is a big field of supply here.

Havana, Cuba, June 8.

A GOOD LIST OF "DON'TS."

Requeen in the Fall; Winter Cellar Bees on Good White Honey.

BY R. G. CAREY.

I have had a great many failures which might have been prevented if I could have known where I was in the wrong. I will give a few suggestions and cautions for the benefit of the beginners.

Don't dig the snow away from the hives unless it is a very warm day, for the least little jar will set the bees to crawling, and break the cluster, and they will die.

If you winter bees in the cellar, don't go down every day or two and hold a light under the hives to see the bees, for it makes them crawl about, and many will not get back in the cluster. Those that do will load up with honey, bringing on dysentery.

If you give the bees a midwinter flight, don't set the hives within three rods of each other, for they have been in the cellar all together, and all have the same smell, so that, when they fly, some hives will get lots of bees and some will have a mere handful.

Don't tinker with your bees in the spring unless they are flying freely, for you will chill a lot of brood if you take the cover off and stir them up the least bit.

Don't put your sections on until the bees whiten the top edges of the combs, and stick little bits of wax on the under side of the cover, for if you do you are liable to chill the brood and set them back. They won't work in the sections until the right time comes any way.

I have had good success in introducing young queens about the time fall apples are picked. These young queens will fill the hives with eggs where an old queen would hardly lay at all. These eggs are the bees that are in the hive April 15.

I manage to have a frame of nice white clover honey in the fall for every colony. Then about three or four weeks before winter sets in I go to my hives and take out the lightest frame that has no brood and place that frame of clover honey right in the center of the brood-nest. I find that the bees will move the honey out of the center of the frame; and as fast as they do, the queen will fill those cells with eggs. If you winter in the cellar, that frame of honey is about as much as they will consume during the confinement, and they will come out in better condition in the spring than they would if they had late fall honey to winter on. In the spring, when the maples are in bloom, I look the bees over. If they want more honey I give them some of the heaviest frames I took out in the fall, and in that way I don't have much if any thing left but empty combs.

Spencerport, N. Y., March 23.

SHALLOW FRAMES SAME DEPTH AS SECTION-HOLDERS.

Putting Brood-frames in the Super to Induce Bees to Work in the Sections.

BY E. P. CHURCHILL.

About fifteen years ago I had a shallow-frame idea, the same length as the L., and $4\frac{1}{4}$ inside, with top and bottom bar $\frac{3}{8}$ thick by $\frac{7}{8}$ wide, and wide (section) frame the same thickness of required box width, so as to take four sections. On each corner of the brood-frame I glued and nailed wedges $\frac{7}{8}$ long with about half its length left as a bearing. They were $\frac{3}{16}$ thick so as to space as near a natural bee-space as could be handily, and it all proved better than I expected. Why, I often have a whole set of combs (9 frames), all brood, save some pollen - yes, not a bit of honey in the nest. I use reversible iron on section-frames and quite a lot of brood-frames. Nothing is handier than to have four sections reversible at one turn, or something which can be exchanged from inside to outside of case quickly. There are slatted separators nailed to one side.

Now you see I can put a frame of brood up among the sections, which hurries the bees into them (I know). I always find bees in the sections sooner on shallow frames, and get most honey there; and as all are the same length I change cases to regular L. hives. Wedges being up and down they work perfectly; and one advantage is, open ends afford a beeway, and but little room for gum; and as they run with square ends out there is no chance to catch, and they are superior, even on L. frames, second one in place of end of whole spacer.

Of course, I have scraping to do on even so small a bearing (and we have got to scrape or make a bungling job), to say nothing of inducing bees to stay down by frames being pressed too far apart by propolis.

It seems to me a big mistake, those inch-wide top-bars, as it rather prevents egg-laying, as the $\frac{7}{8}$ thickness is natural. I have noticed where I made closest spacing I get section work sooner and heavier.

With my shallow frames I have to use excluders. I use only one set of brood-frames to a colony; and when they get too full I use some in other hives among sections; and to help weaker ones, if so needed, and thus keep swarming down by replacing empty combs or foundation-frames I haven't a thing that hits the nail more fairly than the above arrangement.

My hives (all chaff) have regulating entrances from 0 to $\frac{3}{8}$×6 inches, or I can remove it and give 1×14. The small one is all connected, and can be trusted against wind and storm and robber bees. Hives ought to have regulating and yet permanent slide-entrance regulators as much as a house—why not?

I see in GLEANINGS suggestions for shorter spacers. Don't hold to that as an improvement. Why, there would be still more sway and variation, especially without thorough scraping and hard and sure pressing together.

All need a pry to move followers—two pieces of half-inch or more, a foot or more long, fastened in a square from one to three inches wide, one five with ends, ends wedged an inch or so. That is one of my most useful tools. We need a hand pry for followers to hold much.

My bees are all raised from the bottom-board, and never had such warm packing as last winter, and never were so still and so indifferent to noise.

Hallowell, Me.

[Our friend Churchill is one of the oldest users of shallow frames, but very few find it practicable to use frames quite so shallow. Regarding top-bars, they can be narrower in the case of shallow than deep frames. —ED.]

ITALIANIZING AS A CURE FOR PICKLED BROOD.

An Interesting Experiment.

BY G. A. BOSTWICK.

After reading what Mr. C. F. Bender and A. J. Halter say in Dec. 1st GLEANINGS I beg to say nearly all they have said I have verified in my own experience.

Two years ago I purchased ten colonies of bees in boxes of all shapes and sizes. Previous to this all my bees were healthy. In transferring my new bees to movable-frame hives there were leaks from broken combs, and drippings here and there. About three weeks after, I discovered sunken cappings, and careful inspection failed to show a healthy colony in the whole yard nor even in my neighbor's yard. I sent you a sample, and you said you were unable to tell definitely whether it was black or pickled brood—certain cases of each resembling each other.

After doctoring, fussing, and writing for a year, I ran across a man of wide experience in troubles of this sort. He advised me to get rid of the black blood in my apiary. In the mean time I had the disease examined by a prominent bacteriologist, who unhesitatingly pronounced it pickled brood. He seemed to take a deep interest in my case, and insisted that I introduce pure Italian queens throughout. Now for the result. As fast as colonies became thoroughly Italianized, the disease disappeared.

After all were Italianized and healthy I had a stray swarm come to an empty hive on some old combs from pickled-brood hives. The next spring they had the disease. Of course, it might have come from diseased honey in their honey-sacs; but the fact they were on infected combs seems quite convincing. I Italianized them, and they were cured. I am not saying Italians are free from pickled brood; but I do think they are much more immune to brood disease. I have had two seasons to look for the return of the disease, and have been unable to detect a single cell, the same combs previously being full of it.

Verbank Village, N. Y., Dec. 7.

THE HOFFMAN FRAME.

Producing Both Comb and Extracted Honey in One Super.

BY M. W. SHEPHERD.

We notice on page 593 an article from Mr. Hoffman in defense of the frame bearing his name. We notice he says, "as for the practical bee-keeper, the loose swinging is out of date." We would say that, with the small bee-keeper, and in a locality where there is but little propolis, the self-spacing frame might give satisfaction; but where large apiaries are kept, or where propolis is abundant, the self-spacing is not what the bee-keeper wants. The Hoffman frame is not a good frame to use in the extractor; no uncapper can handle as many of them in a day as he can of the unspaced kind, and I have never yet found the person who could clear a super of Hoffman frames as quickly as he could the loose or unspaced. Where propolis is plentiful the Hoffman frame soon refuses to go up close to its neighbor. You must scrape the propolis off soon or you can not get the follower in the hive, and that is usually the condition in which I find Hoffman frames. J. A. Green puts the matter true and square when he says the Hoffman frame is not the frame for average bee-keepers, for they will forget to crowd the frames together. Mr. Hoffman says that is easily answered by giving such average bee-keepers the advice to go back to the old box hive. We wonder if that is an indirect admission that, if the Hoffman frames are *not* crowded together tightly, and so held with springs, they are no better than the box hive. We are inclined to think it is about the truth, anyhow.

Years ago, when living in the North, and using the two-story chaff hive, we tried alternating the wide frames with extracting-combs, thus producing both comb and extracted honey in the same super. We found the extracting-frames worked all right, but we had trouble by having the comb honey built out and over the upper edges of the tin separators, so we gave the plan up. Mr. Townsend, by adopting the idea to be used in the shallow supers, may make a success of it; but it gives a lot of small combs to be cared for at the end of the season, which may be counted as an objection by some. They might possibly be sold as chunk honey, and at better prices than he could get for the honey extracted. However, we hope the plan will be thoroughly tested the present season. Mr. Townsend says, page 594, to overcome this tendency of the bees to go above, probably the majority are bait sections. We ask *why* the majority are bait combs. In our practice we never use more than one or two bait sections to the super—always put them as near the middle of the super as possible, and have never had trouble in getting the bees to work at once in the supers; yet we are aware that locality has much to do with it, and what will work here would not do in Michigan or other northern States.

The honey crop throughout the South is short this season — in fact, it is a question whether bees will get enough to winter on; if they don't, will it pay to feed?

Interlachen, Fla.

[You say, "The self-spacing frame is not what the bee-keeper wants" "where large apiaries are kept." The facts are, there are hundreds of "large apiaries" where nothing else will be used, and there are several very extensive bee-keepers who are using Hoffman frames who run for extracted honey, and who have from 1000 to 1500 colonies. For instance, Mr. F. H. de Beche, in this issue, would not have any thing else, and propolis is very abundant in Cuba. Indeed, the conditions are much the same there as in Florida. As I have repeatedly stated before, this question of frame choice is largely one of individual preferences based on methods of management in different localities. For instance, there are some counties in York State where bee-keeping is carried on very extensively, where the self-spacing frames are used very largely. In Wisconsin there are other counties where nothing but the unspaced frame is used.

With regard to springs, we do not recommend them to go with Hoffman frames, and have never used them, and we do not know of any one who does.

Our correspondent's horizon would be considerably broadened, perhaps, on this self-spacing question if he were to take a trip among bee-keepers that would aggregate anywhere from 2000 to 5000 miles, taking in all kinds of localities in all parts of the country. I have made several such trips, and am not prepared to recommend the Hoffman frame to everybody, nor the closed-end, nor even the unspaced Langstroth. —ED.]

GETTING THE BEES INTO THE DANZENBAKER SUPER.

An Excellent Plan for Curing Bees that Sulk.

BY JAY SMITH.

I was much interested in reading the article by Mr. Townsend, page 594, in regard to using extracting-combs in the outside frames in the supers. I have been experimenting along similar lines, and have solved the problem of getting the bees into the super, to my own satisfaction at least.

In the spring, as soon as apples are in bloom, I give a second hive with drawn combs under the first. Later, or just before the raspberries bloom, I shift the bottom hive to the top, thereby giving the queen plenty of room to lay. I leave things alone till the clover flow is on in earnest, or till the bees have been gathering for about a week. Then I select ten frames containing the most capped brood, and place them in the bottom hive. The super with full sheets of foundation is now put on, a queen-excluder on top of this; and the other hive-body, containing some brood, pollen, and honey is set on top of all. In about two days the foundation is whitened and partly drawn. Then the top hive is removed to a weaker colony after first shaking or brushing off all the bees. In using this method I never had *one single colony* loaf or sulk when adding the super or when taking off the top hive-body. I never had any pollen in the sections, and every one was as white as snow. I do not have half the swarms I used to have when using but one hive. The objection I have to using a super full of extracting-combs is that I can not get the bottom hive completely filled with brood as I can by using two and then removing the outside combs and putting in frames of brood from the top hive.

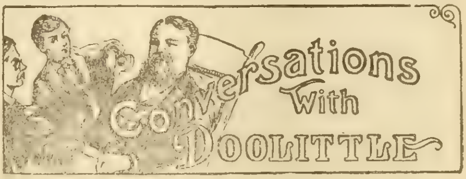
Now, to dispose of the partly filled left-over sections I place them in the outside rows, when the entire super is finished at the same time. But I dislike left-over sections on general principles, and had decided to nail on a top-bar and use the two outside frames in super for extracted honey; but I see Mr. Townsend has "beat me to it."

I use these bait combs for bait in another way. I take them to the grocer whose customers complain that "that white stuff was never made by bees." After getting the customer started on this dirty honey, and after he knows where it comes from, I can then get him to work on A No. 1 white honey; whereas if I had tried to start him in on white honey he would have sulked.

I use the Danzenbaker hive, and with this management it gives the best of results.

Vincennes, Ind.

[Our correspondent is working along the right line. The method of management he describes is especially applicable to a shallow or double brood chamber hive like the Danzenbaker.—ED.]



SWARMS BUILDING DRONE COMB.

"Say, Doolittle, how long does it take you to get to questions sent in to you for your department in GLEANINGS?"

"Well, Mr. Snowberger, that depends on how crowded I am with questions. I am generally from one month to a year and a half behind; though I try as far as possible to answer the questions that are suitable for a certain portion of the year, so that the answers in the conversations will be as near applicable to that particular part of the year in which they can be put into practice to the best advantage as may be."

"I read your conversation in the February 15th GLEANINGS for 1904 on making sugar syrup for feeding bees, and noted it in my memorandum for future reference."

"That is a good way; and with the person who does this, it matters very little whether an article is suited to the portion of the year in which it appears in print or not, for with such memorandum before any person he can turn to any or all articles appropriate to the time when they can be used to the best advantage at just the time they are needed. But the great majority of readers do not keep such memorandum, and so it is better for any matter useful only at one particular time of the year to appear in print just at the time when it can be put into practice, or a little before that time might be better still, as then it would give a little time for a preparation to try the plan."

"I much enjoy your conversations, and get much valuable information from them as published in GLEANINGS. For this reason I have come over from Indiana (by letter) to talk with you for a few minutes."

"I am glad if any thing I have written has been helpful to you in any way, and I thank you for your words of encouragement. What shall we talk about to-day?"

"The point I want information on is how to prevent swarms from building drone comb when hived on starters."

"To answer you best, or so we can understand each other, allow me to ask what course you have usually pursued when you have trouble with newly hived swarms building drone comb?"

"I have been hiving them in contracted brood-chambers, giving from five to six frames."

"If you gave them sections filled with foundation at the time of hiving, that plan should not give much drone comb, according to my experience."

"I gave them ample super room, shade, and ventilation, as I considered it. But, notwithstanding it all, they almost invariably fill the empty or starter frames with drone comb."

"What am I to understand by your term 'empty or starter frames'?"

"Why, frames empty except a half-inch-wide strip of foundation cemented to the under side of top-bar, the same running the whole length of the center to the same."

"Yes, that is all right. And you use all the five or six like that?"

"No. I always put in one or two frames filled with comb, so as to make the hive appear more home-like to them, and to make them stay better. And even then very many of my swarms desert their hives the next day after hiving."

"Now you have given me the reason why you have so much drone comb built. It seemed a mystery at first. But those two frames filled with comb explain it all."

"How is that?"

"Bees build worker comb most largely only when the queen keeps pace with her egg-laying. Nature has made it possible for the queen to fly and keep up with the swarm by her ceasing her egg-laying two or three days before the swarm issues; for a queen under the full height of egg-laying can not fly to a greater extent than a flying-squirrel can—that is, by a sailing motion she does not fall like a stone to the ground, but she can not rise in flight; she must gradually settle to the ground unless she has ceased laying from two to three thousand eggs daily, down to only a few hundred, or none at all."

"What has that got to do with the matter? I don't see."

"Wait a moment and I think I can make it plain. Nature not only stops this egg-laying at this time so that the queen can fly with the swarm, but also that she need not be pressed with a lot of eggs continually till comb can be built in the newly found home; for you are aware that the hollow tree or cave, empty box, room, or space into which they are likely to enter for a home, in a state of nature, is not provided with any comb; no, not so much even as frames with starters in them. Now, as soon as such a home is entered, the bees begin to clean and prepare this home for their combs, which will be barely started in from twelve to twenty-four hours, and in this time the ovaries of the queen begin to fill with eggs so that, by the time the combs are half as large as your hand, she is on hand with eggs for every cell as soon as deep enough for her to lay therein. This is what I meant by the queen keeping pace with the bees in comb-building, and just so long as she keeps right up with her eggs in this way, laying an egg in each cell as fast as the bees complete it deep enough for her to lay eggs in, just so long will the bees build worker comb. But where comb is built much faster than she can keep up with in this way, then the size of cell is changed and drone comb is the result."

"Admitting that you are right in this matter, where does my giving a frame or two of empty comb come in?"

"By your providing more empty comb for the queen to lay in at the time of hiving than the bees would naturally build in five days, where only startered frames were used, and thus the bees are that far in advance of the queen at the beginning as well as at the end of the five days, while in the beginning she has no eggs to put in *any* of the eight or ten thousand cells you have given. Consequently the bees are way ahead of the queen in the matter of comb, and for this reason you almost invariably (as you put it) get your startered frames filled with drone comb. I wish I could emphasize this to such an extent that *all the bee-keeping world* could hear; for on no other subject do I get so much inquiry as I do on this. If you want your swarms to build only *worker* comb, in *no case* give those swarms *any empty comb* at time of hiving."

"Perhaps you are right in this. But would not my swarms desert more than they now do, did I not give the comb?"

"Perhaps, under like conditions."

"What do you mean?"

"A large prime swarm, coming from a ten-frame hive with supers on, is not likely to be contented when hived in a hive so small as five or six frames; and these are the conditions under which you have placed such a swarm."

"But what other conditions can there be when we use the contraction plan for section honey in connection with swarming?"

"My way has been to hive all such swarms on the whole ten startered frames; that is, give this swarm the full empty ten-frame Langstroth hive. This places them in the same position they would be in when they found a home in a state of nature. And not one swarm in fifty will desert such a home with me."

"But you can't use the contraction plan in this way."

"Let us see. I leave them thus for 48 hours, at which time they are fully established in their new home, with no desire to leave. They have more or less comb well under way in from four to six frames; the queen is keeping pace with her eggs, and all is lovely. I now open the hive and take away four to six of the frames having the least comb in them (generally the starters are little touched), contract the hive to suit the frames left, and put on the sections; the result of which is a contented swarm, these frames left filled with all worker comb, and the sections filled with beautiful snow-white honey."

"Well, if this thing will work as well with me I shall feel well paid for coming to see you. I will try it at least."

Heads of Grain
from different fields

ENTRANCE-GUARDS FOR OUT-APIARIES TO PREVENT SWARMING; ALSO TO PREVENT NEWLY HIVED SWARMS FROM LEAVING.

I want to ask you something concerning running out-apiaries. I have 155 stands of bees at present—more than I think will pay to keep in one place. I am thinking of running an out-apiary next year. How far ought the two to be apart? I will give my plan for running it.

I thought I would put on entrance-guards just before swarming, and visit the apiary once a week and take the guards off and let them stay off all day so the bees could swarm that day if they wish to, and also in order that the young queens could come out and take their flight; and when I leave the apiary late in the evening, put the guards back on and continue the same way through the swarming season, then remove the guards for the rest of the year. Please give me your opinion as to how you think the plan will work in running out-apiaries.

I noticed in GLEANINGS that some have complained of swarms running away. I will give my plan of keeping swarms from what we call running away. When I hive a swarm I put a small entrance-guard on the hive, and let it remain there for a few days—that is, until the bees have commenced work. I then remove the guard, and therefore I never have any swarms leave after I hive them. I have had them try to leave every day for several days, but the queen could not get through the guard; and so the swarm would return and go back into the hive. I think if those who have been troubled with swarms leaving will try this plan they will not be troubled in that way any more.

Dawson, Ga., June 5. E. J. HORNE.

[It would not be practicable for you to take off the drone-guards and expect swarms to come out when you were at the yard. As a general thing, when a swarm attempts to go through the metal, and tries it two or three times as it would do in your absence, it will kill its queen and rear others. What is worse still, it will waste valuable time right in the height of the season, sulking, because it can not go off with its queen.

The use of the drone-guards to keep the swarm from going away when once hived would be all right.—ED.]

A SUBSTITUTE FOR THE RUSSIAN TIN BOXES; COMB HONEY WITHOUT SECTIONS SIMPLY WRAPPED IN OILED PAPER, AND SLIPPED INTO A CARTON.

If the Russian tin box can not be produced in this country at a price that will meet the conditions of our honey market practically, then I believe the same thing can be accomplished in another way, and that "cut comb honey" can be wrapped in oil paper and placed in a nice strong paper carton, and marketed as well as or better than in the tin boxes. As to preserving honey in transportation, store, and for table use, I do not see why this plan would not be perfect. Properly wrapped in oil paper, there could be no leakage, and the natural aroma of the honey would be retained, as the wrapping would be practically air-tight. Frames spaced 1½ from center to center will give sealed comb 1¼ thick; and if this is cut into sections 5×4 they will weigh one pound, after the honey has drained out of the severed cells. These 5×4×1¼ sections of cut comb honey, wrapped and put into a 5⅛×4⅛ ×1⅜ carton would be in fine shape for distribution, I should think.

To secure "no-drip" packages, the paper wrapper would have to be 14×10, and for shipping honey put up this way sectional crates would be required, so each carton would have a separate pocket. Honey put up in this way might put an effectual stop to the canards about comb honey.

Blairsville, Pa., May 11. W. D. KEYES.

[I question somewhat whether it would be practical to wrap up cut comb honey in paraffine or waxed paper so it will not leak out. If there should be a break in the corner of the paper, a large amount of honey would ooze out, soiling the retailer's counters and showcases in a way that would disgust him forever with goods put up in that way. I hope, however, you will try the plan, and report how it works, both in wrapping and as to how the trade takes to it.—ED.]

BEE-ESCAPE SWARMING; A PLAN THAT SEEMS TO HAVE CONSIDERABLE MERIT.

For three seasons I have used the following plan with success. When I find larvæ in queen-cells so that I know the colony is preparing to swarm I put a body filled with frames of foundation on the bottom-board, next to a queen-excluding board, then the surplus cases, next a Porter bee-escape board; on this the body containing the frames of brood, and, lastly, the hive-cover. Leave the hive in this condition on the old stand till the field bees have had time to pass through the bee-escape, say twenty-four hours. So far the manipulation is the same for all purposes. The next thing to do is to introduce a queen into the colony below the queen-excluder. This may be the old queen taken from the brood-nest above, or another. If another, the old queen may be left where she is till I decide what to do with her. If I wish for increase, at the proper time, whenever I think a sufficient number of the newly hatched bees have gone below, or I conclude I have left in the old brood-nest enough brood and bees for the nucleus of a new colony, I remove the old brood-nest to a new stand. If I do not wish for increase I may kill the old queen and let the young bees go below through the bee-escape till all are hatched, or let the old queen continue laying for a while before she is removed. If I put the old queen below, and wish for increase, I introduce a new queen above and make a new colony at the proper time as before. If I make the bees above queenless, I usually keep queen-cells cut out — a small job, for the larvæ soon become too old, although I have got along all right by laying a piece of perforated zinc over the hole of the bee-escape.

Solon, Maine. Turner Buswell.

[We should be glad to get reports of this from many of our subscribers. The only thing I fear is that too many of the bees might desert the brood in the old hive, causing chilling or starvation of the unsealed brood.—Ed.]

AN OLD QUEEN-BREEDER FAILS TO MAKE THE BABY NUCLEI WORK.

I have had to give up queen-rearing in my out-apiary, as there are too many blacks and hybrids in the vicinity. I can attend to a hundred nuclei, and some over. I am not depending on baby nuclei. I tried about a dozen of Laws' make last year, but made a failure. I have not tried since. He recommends, if I understand right, to renew the bees in the mating-box every time a queen is taken out. Is this the case with the Swarthmore? The bees would invariably swarm out in mine. It may be that I did not keep them stopped up long enough. As to the Sibbald plan, it is the best in the world to have queen-cells built, but surely they had better be cut out before the first one hatches out, or there will be a good many bees less in the hive when examined two weeks from time of operation. I transfer larvæ in drone comb, and give to one of these artificial swarms without royal jelly or fussing with cell cups; and I can have as many cells built as I want that will make as pretty a picture as you want to see.

To get best results I give a frame of even-up larvæ, first for 24 hours, and then take that away and put in an upper story to have cells that are started finished, and about one hour after taking away that frame of brood I transfer larvæ into drone comb, and they will accept nearly all, and in that way work the one colony for queen-rearing on two sets of larvæ.

Coronaca, S. C. J. D. Fooshe.

[Our first experience with baby nuclei was unfavorable. We tried them the second and third time, and still they apparently went back on us; but now we have discovered some secrets of our failure. We have already given in late issues some of them; but the most important is to take queenless bees from an outyard and give them a virgin, and, if practicable, brood. Make up as many of these as possible at the outyard; bring them to the home yard, then give them virgins. Keep them shut up for 24 hours, then let them loose, but do not put them near the entrances of strong colonies.

We do not find it necessary to give a fresh lot of bees each time a queen is fertilized. Last summer we used the same bees over and over again, and are doing it this summer.

We have reared some very nice cells off from drone comb, and that, too, without royal jelly, as you speak of; but in all kinds of weather and under all conditions we get far better results with the royal jelly, and the Pratt wooden queen-cups are much more convenient to work with.—Ed.]

THE LEWIS-HALL IMPROVED FOUNDATION-FASTENER.

Replying to your footnote to my article regarding "bottom starters," etc., page 552, I will say yes, I think any machine or fastener using a hot plate can be arranged as you say, so far as I know, though the Daisy, I think, would waste too much wax. The Lewis has a very thin sheet-steel plate; and when sharpened it melts away scarcely any wax at all. By using the beveled edge, and by slanting the fastener slightly forward, all the melted wax flows toward the edge of the plate, and is wiped off and used for fastening each starter by the starter as the hot plate drops back from under it, so there is no waste wax-drip at all.

Until I learned not to turn the lamp up so high as to smoke, and make the hot plate black, the waste wax would get black, and, of course, that made trouble. Yes, I have a *good* reason for fastening them as I do. Perhaps the main reason is because I am too clumsy and thick-headed to learn how to handle such a narrow strip of wax (especially when the mercury was playing up around 90 and 100°), and get it in the section where it belongs. You say it seems to you that, to cut up and fasten in the ordinary way separately, is quicker, and then your closing sentence seems to imply that a "master mechanic" would need to be employed to change the machine. I don't know how many I can fasten in in a day, or in an hour; but I have fastened in as many as 23 in a minute; but one wouldn't want to rush through life at that rate very long.

But say, E. R., I have confidence enough in my plan to believe I can take a new machine out of the shipping-case, arrange it for bottom starters, set it up, and put in 5000 or 10,000 starters (bottom and top), and do it *just as well* and quick as you can, or any other man (Dr. C. C. M. not excepted). F. W. Hall.

Hull, Iowa.

[And perhaps you could do it quicker. Twenty-three a minute is not slow work.—Ed.]

THE DANGER OF GIVING YOUNG WORKER BROOD TO A COLONY HAVING A VIRGIN QUEEN.

On p. 543 I notice that Mr. Doolittle says, in speaking of queenless colonies, "If queen-cells are started, procure a queen for them from some source, or give a frame of brood from some other colony every week until a young queen from one of the cells built becomes fertile." Now, I think this, especially coming from Mr. Doolittle, is apt to cause trouble for those who try it, as my experience for years past is that, if you give to a colony with a virgin queen a frame of brood containing eggs, nine times out of ten they will kill their queen and start cells again. Give them all the brood you like before the virgin hatches, and after she begins laying, but never before she is fertile.

Sometimes when honey is coming in rapidly they will not kill their virgin if given brood, but in most cases they do.

Montgomery, Ala. D. R. Keyes.

HOW THE COMB-HONEY LIE IS DEEPLY ROOTED IN THE POPULAR MIND.

Last week I had a nephew from Portland, Oregon, visit me. We had honey on the table. He said he enjoyed it very much because he thought it was pure, not manufactured. We told him it could not be manufactured; but he insisted it was, because the frames it was in were *spotlessly* clean, and he was sure it was. He is a grocer, and runs three delivery wagons; but we insisted it could not be manufactured, and told him of the reward offered for a fair sample of manufactered honey. He said, "Why, I am so glad to know this!" He said he could sell much more honey if it would come to him not cleaned. He said he could sell double the quantity. He added, "Tell people not to clean honey if they want to sell it." Since we quit cleaning ours we can sell it all near home, and no one accuses us of making it.

Mrs. L. C. Axtell.

Roseville, Ills., May 23.

QUEENS SENT BY MAIL DYING WHEN LEFT IN METAL LETTER-BOXES EXPOSED TO THE SUN'S RAYS.

To have queens placed in the usual metal letter-box exposed, as it usually is, to the direct rays of the sun, and with little or no ventilation, means death to the queens in a short time. Where may I get an "approved" letter-box suitable for the reception of queens? or what provision is made by the Postoffice Department in such cases? I need a large well-made box provided with slot and arrangement for lock.

Westminster, Md. Lew W. Haines.

[We are not able to advise you with regard to the approved form of letter-box; but if we understand the matter correctly you could put a wooden box in its place that would be perfectly acceptable to the government. The present box, if painted white, would help somewhat. You had better arrange with your mail-carrier to deliver the queens direct to the house rather than put them inside the box where they will be subjected to the sun's heat.—Ed.]

EXPERIENCE WITH THE ALEXANDER PLAN OF INCREASE; AN ANSWER TO W. H. CRAWFORD'S QUESTION, PAGE 606.

On May 5 I put a queen in a new hive with a frame of brood, and set the old hive on top, as directed by Mr. Alexander. May 16 I took the old hive off and placed it on the new stand. May 17 I put the cage with the laying queen in the new hive. May 20 the queen was released about noon. May 21 the queen was killed by the bees after being in the hive 24 hours. May 22 I gave them a comb of brood and eggs. I did not look into them again until June 1, and found no queen-cell had been built. I closed up the hive without looking at any more frames, but next day I opened up and found brood and eggs. Some of the brood was sealed. The queen had evidently hatched out while the hive was on top of the new one, and was ready to mate when it was taken off. I had noticed several queen-cells while looking for the old queen, but thought the bees would tear them down as soon as they decided not to swarm. I think this answers in part, at least, the question of Mr. W. H. Crawford, of Roswell, N. M. This queen would, no doubt, have mated through an auger-hole if she had had one, as she lost no time about it when the hive was taken off.

My object in writing this is to warn beginners like myself from giving valuable queens to these new colonies without first making a thorough examination and removing all queen-cells. I ordered a tested queen from an adjoining State; and as it was my first attempt at introducing I felt pretty bad when I found my fine queen "stark and stiff" in front of the hive. Final results, however, impress me more than ever with the great value of this method to bee-keepers.

J. D. Rowan.

Chesterville, Miss., June 9.

A REPORT FROM THE ALEXANDER METHOD OF INCREASE.

As I have been a reader of Gleanings for some time, I will send you my report of the Alexander method of swarming which I have been trying without success.

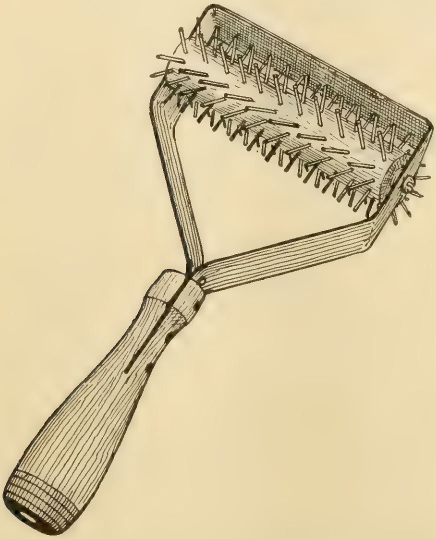
On May 24 I took a frame of brood on which was the queen, also adhering bees, and placed them in a hive filled with empty combs, then put this hive on the old stand, next placing the old colony on top with a queen-excluder between. On June 1 they swarmed as any other colony would. My excluder was made of three pieces of perforated zinc (size about 3×6 in.), on a board the size of the hive. Perhaps there should have been more. Do you think this was the reason for their swarming?

Highland, Mich. DON MILLS.

[You had enough perforated zinc, I should say. I am unable to explain why your experiment was a failure except as it was conducted on too small a scale, for "one swallow does not make a summer." If you will try it again on a larger scale, using more colonies, and following Mr. Alexander implicitly, you will, in all probability, get the same result he does.—ED.]

AN UNCAPPING-ROLLER.

The roller which I am sending you I use for opening the cappings on combs, when giving colonies a frame with honey for stimulating in the spring. When rolling over the combs the sharp points of the roller press just a little hole through the cappings, enough for the bees to start on. When using the uncapping-knife to remove the cappings it often leaves the frame in a rather smeary condition. C. H. W. WEBER.



Cincinnati, O.

[This tool is advertised in nearly all of the bee-supply catalogs of Germany. Whether it is used for actual uncapping purposes I do not know; but with honey as thick as we find in most localities in the United States a mere perforation through the capping would not be large enough. The combs would have to be revolved at a very high rate of speed—high enough to crush them. I am inclined to the opinion that the tool is used a good deal as Mr. Weber states above, for the purpose of stimulating only.—ED.]

BEES BUILDING COMB TO UPRIGHT CLEATS ON THE FENCE.

In using shallow extracting-frames in supers with plain sections and fences, as per Townsend plan in June 1st GLEANINGS, would not the bees build comb to upright cleats of fences next to the frame? Would it not be a good plan to remove the middle cleats of the fences next to the frame?

Vassar, Mich. R. D. CHAPPELL.

[Yes, there would be danger of the bees building their combs up against the post of the fence next adjoining. In that case, perhaps it would be best to remove those uprights, or, in other words, use a one-sided fence—the plain side to the extracting-comb and the bee-spaced side to the plain sections.—ED.]

WINTERING BEES IN VENTILATED FROST-PROOF BUILDING.

I have read the discussions about inside wintering of bees. We put ours into winter quarters the 17th of November, and I set them out the 18th of March—149 out of 152 coming out in fine condition, there being two of them marked "doubtful" when they were put in. I winter in a frost-proof building *run entirely by ventilators*. They are in total darkness, and an average temperature of 44 degrees. I tried a few in the cellar, but they were not in nearly as good condition. The bees dwindled away worse, and the combs are somewhat moldy. We have not given our bees a midwinter flight in ten years. CHAS. F. LASHIER.

Lestershire, N. Y., May 15.

STRONGER DIVISION-BOARDS.

I have noticed considerable said in GLEANINGS about division-boards and followers not being strong enough. I have some made of three-ply stuff, such as chair-bottoms are made of, and I find them very substantial. I think if you will try it you will find they will not break, and will stay in place, and they are not expensive.

F. H. BRAYNIER, M. D.

West Pawlet, Vt.

[Division-boards made of the material described would be somewhat expensive. We are now making a division-board that is fully two or three times as strong as the ones we turned out last season, and at the same cost.—ED.]

BEE LOUSE.

In watching my bees as they come out of the hive on to the alighting-board, I notice some of them shaking and clawing at their backs. I thought at first it was paralysis, but I find on a close examination that there is a big red louse just under the wings on the back of the thorax. I should like to know if there is any way of getting rid of this pest. ANDREW B. JUDSON.

Escondido, Calif.

[The insect that you find on the backs of your bees is what is known as *Braula cœcus*. They never do any serious damage that we have ever been able to discover. They are found only in warm climates.—ED.]

TWO QUEENS GOING OUT WITH ONE SWARM.

May 22 I had a fine prime swarm issue; and when I shook them in front of the hive I saw two fine large queens enter — in fact, I guided them in with my hand. Now, if it is the *old* queen that goes out with the first swarm, where did the *two* come from? Do not say that two swarms went together, for I was near them almost the entire time, and would have seen another had one come out. Besides, this one came from a colony somewhat remote from the main apiary. The next morning one queen was outside on the hive-stand dead. My first swarm came in April, and since May 1 they have been swarming almost daily.

Farmington, W. Va. JOHN A. BOCK.

[It sometimes happens, in the case of a supersedure, that the old queen will be allowed to continue right along with the young one. So far as the bees are concerned, they do not care; but it is a question of whether mother and daughter can get along peaceably in the same house. But there are many recorded cases where they do. If the colony has such a pair, the swarm probably will have two queens.

Or it is possible or even probable that the colony was preparing to swarm — that there were ripe cells, one of them having hatched. When the swarm went forth, the old mother and the virgin went with it. This not infrequently happens.

Or it is possible that the prime swarm had gone forth already, without your knowledge. The second swarm might contain several virgins; in fact, we have had numerous reports from beginners who wondered why it could be there were so many queens in one swarm, when, as a matter of fact, a second swarm will probably have more than one virgin.—ED.]

MELTING UP FOUL-BROOD COMBS IN A GERMAN WAX-EXTRACTOR.

Please tell me how to treat a Root-German steam wax-press so as to kill all foul-brood spores, etc., so that honey pressed from it (which has not been contaminated) will be safe to feed for winter stores. In rendering foul-broody combs into wax with this press, will the wax need any further heating before it will be safe to ship to the foundation-makers? I have about 350 frames of foul-broody combs which contain considerable honey. ERNEST W. REID.

Lennon, Mich.

[If these combs contain honey it probably would be best to squeeze it out by putting the combs in cloth bags and then running the plunger down on them. If the honey is squeezed out in this way you can use it for feeding, and extract the wax in the squeezed combs later. Before using foul-broody honey for feeding, however, you should boil it thoroughly, say for half an hour, and next day do the same. As an added precaution it would be well, also, to boil the honey again in two or three days, so that any spores of the disease which were not killed at the first boiling would develop and be killed later. You can then steam up the press and render the wax from the combs, as described in our directions. The wax will probably need no further treatment before sending it to the foundation-manufacturers, for the heat during the pressing will probably be sufficient to remove all traces of the disease.

During this whole process you must be exceedingly careful. All cans or pails which come in contact with the honey or wax from these foul-brood combs must be thoroughly disinfected by boiling, and all the work should be done at such a time or in such a place that no bees will come around trying to rob, thus carrying the disease. After you have finished the work, be sure to boil every dish and tool that you have used; and it would be well, also, to allow the press to steam for perhaps two or three hours, and then, as before, it would be well to steam again in a few days. In this way the germs will be killed and the machine will be free from disease.—ED.]

ONE SWARM SETTLING IN FIVE OR SIX CLUSTERS.

May 20 I had a swarm about 10 A.M. It settled on the limbs of trees in five or six places, about as large as a goose egg. On looking at the old hive I noticed a ball, and, sure enough, they had balled the queen and killed her before I could stop it. What should have been done? GEO. W. SABIN.

Wilmington, O.

[When there are several little clusters like this, shake them all into one box or basket, and hive in the regular way. Possibly there was an old queen and a virgin, and one or the other was one too many.—ED.]

A SHORT EASY WAY TO CONTROL SWARMING AND MAKE INCREASE.

Having read with much interest the various plans given in GLEANINGS for controlling increase and swarming I will give one which, if not new, is good, as I have practiced it for some time with uniform success.

We usually have a light but long-continued flow, and swarming begins early. Now, as I want only moderate increase I proceed thus:

Having found queen-cells started in No. 1 I go to another strong colony (No. 2) and move it to a new stand; then I place No. 1 on the stand of No. 2, and an empty hive on the stand of No. 1. Next I take the queen and one or two frames of brood and bees from No. 1 and put them into the empty hive and fill up with frames containing starters, giving the now queenless colony a ripe cell if convenient.

It is not essential that there be queen-cells started in No. 2 when the shift is made, if the colony is strong in blood and bees.

In a few days I have three good colonies instead of two, all ready for the flow, and with no thought of swarming.

Franklin, Tenn. J. M. BUCHANAN.

OUR HOMES,

BY A. I. ROOT.

Ho, every one that thirsteth, come ye to the waters, and he that hath no money; come * * * —ISAIAH 55:1.

I was sent as a delegate to the State conference of the Congregational churches of Ohio; and I should like to tell something about that conference, but I have another matter in mind just now. I went to Oberlin in my automobile, and of course had a most enjoyable trip. Although the roads were not yet in very good trim I managed to run the machine with so much economy that 1½ gallons of gasoline carried me the whole distance, 20 miles. But I am not going to talk about automobiles either.

As soon as I put in an appearance at the big church in Oberlin I was informed that my abidingplace would be with a namesake, Mr. A. S. Root, the college librarian. I greatly enjoyed getting acquainted with Mr. and Mrs. Root and a lot of Rootlets. Of course, I had to take them around town in my auto; and in making some repairs and adjustments I found it necessary to wash the black grease from my fingers. I wiped it off on the grass and on a piece of paper as well as I could before attempting to wash. By the way, let me tell you that, when you are doing any kind of greasy work, you should have plenty of soft newspapers; and before you undertake to wash, clean your hands thoroughly on the paper.

Mrs. Root ushered me into a neat little bath-room where were all the modern appliances for personal comfort. As I turned the nickel-plated faucet over the marble washbowl I said mentally, "Now, this is city water, and, of course, it is hard, and I am going to have a job in getting my hands clean, especially around my nails, with hard water such as we have almost all over Northern Ohio."

Just here came one of my "happy surprises." I think I will call it happy surprise No. 1. While the water was as white and clear as the finest spring water, it was apparently as soft as the purest rain water. With a little soap my hands were cleaned beautifully, leaving them with that nice soft feeling that you always get with rain water. The thing that surprised me was that such beautiful water as that was drawn from the hydrants, indicating that the city must be supplied with just that kind. A bright clean glass was at hand, and I thought I would just see whether it was really as soft as it appeared to be when used with soap. Why, I should have pronounced it *distilled water;* and then I began asking questions at the dinner-table. Mr. Root said it would afford him great pleasure to show me through the waterworks plant and have the man in charge explain all about the filtration and the chemical processes that removed the lime and made the water almost chemically pure. With the aid of the automobile we were soon down to the waterworks. By the way, what a grand thing it is that the State of Ohio has taken in hand this matter of furnishing water for people to drink, and employed our very best experts to superintend the waterworks! Whenever I go into a new town of late I greatly enjoy finding out all about their water supply; and I do enjoy most intensely seeing an apparatus that is not only scientific but clear up to date in artistic beauty. Of course, small towns can not afford to go to too great an expense in this latter direction. Well, a few glances to the right and left enabled me to take in the beauty of the Oberlin waterworks plant, and a few moments later I had happy surprise No. 2. When Mr. Root had introduced the manager and engineer, this latter personage said:

"Why, Mr. Root, I do not know of any other man in the world whom I should enjoy showing around and talking with more than yourself."

"Why, my good friend, I am very much obliged; but how does it come about that you enjoy meeting *me?* You are not a bee-keeper as well as engineer, are you?"

"No, I am not a bee-keeper; but my neighbor is. Do you see his hives over there across the side-hill? Well, I have been following you through your journal for years past. Yes, I read all about the flying-machines, about temperance, good water to drink, and all that; and I am happy to be entirely at your service this morning."

As our children have all been educated in Oberlin—that is, after quitting the Medina schools—I have for years heard more or less about their water supply. The plan they adopted years ago was a reservoir filled with surface water from a little shallow brook that comes from higher ground a mile or so out of the city. Before they had their present apparatus they endeavored to fill the said reservoir with water as clean as possible by turning the brook off to one side when it first began to rain, much as we turn the switch to wash the smoke off from our slate roofs when the rain commences. After the water was running down the brook tolerably clear they let it into the reservoir. Now, it is a hard matter to manage this arrangement for household use, as I know by experience; but where it contains the water supply of a considerable city they can well afford to have a man employed to give his whole attention to it during rainy periods to get the very best part of the rain water into the reservoir. The above plan has been in use for many years; but the water was hard, and not always free from other objectionable substances. The present apparatus, I think, has been in use a little over a year. Besides the big reservoir I have mentioned, there are now two smaller ones, situated quite a little below the large one, with gates or valves so the water can be drawn from one to the other. First, they endeavor to get rid of all sediment by a sort of settling process as much as possible. Then the lime and other chemicals in the water are removed by a chemical process. If I remember correctly, the only chemicals used are sal soda and lime. It seems a little funny that they should use *more* lime in order to get rid of the lime already in the water; but our expert chemists understand their business, no doubt. A gasoline-engine mixes the chemicals and distributes them properly through the water. Not only the chemicals but the operating machinery here used is so inexpensive that this beautiful water is at the present time used for sprinkling lawns and streets, operating water-closets, and for a variety of purposes throughout the city. In case of a fire, if it is only a moderate one the pure water is used to extinguish it; but if the fire threatens to be a serious one, the engineer of the waterworks can turn on the water from the big reservoir. When this happens it will take a little time to run this water out of the pipes after the fire, but it does not occasion much inconvenience. In a city having the moral tone of Oberlin they do not have many fires—at least they ought not to have many.

Let me digress a little. Years ago we collected rainwater from the roofs of one of our factories, for drinking purposes for the hands; but we found it an expense and a hindrance to provide ice for said drinking-water for 100 or more people. We had a well of hard water that was very nice and cool, but a good many could not drink it. Now, to make this rain water cool enough to drink I ran a pipe down into the well and up again so as to cool the water in its passage down and up. This worked all right, except that one was obliged to draw off a large amount of warm water from the pipes in order to get the cool water to drink, and it wasted so much soft water that we had to give it up. Now, the engineer of the Oberlin waterworks has got on to my plan—that is, for drinking water around the neighborhood of the works. He bored down into the ground about 27 feet, with an auger; then he put down into the hole thus made some four-inch sewer-pipe, cementing the joints so it will hold water. Then an iron pipe was sent down to the bottom of this sewer-pipe well, and a stream let into it—just enough to allow the water to get as cold as the earth at that depth. This really made an artificial soft-water spring. Of course, I was thirsty while talking with him so much about good water, and I very much enjoyed a drink of pure soft water so cold that it caused dew to form on the outside of the pipes where it was running. By the way, the most satisfactory test to me of the purity of the water was a little fountain where the spray fell on some flowers and on a pile of rocks. Many of the fountains in our large cities are unsightly because of the sediment deposited on the bowl of the fountain and the rockwork surrounding it; in fact, it never gives me very much pleasure to see a fountain where every thing surrounding, where the spray strikes, is covered with an unsightly slimy deposit of muddy-looking chemicals. Well, the rocks and plants at this Oberlin fountain were just as clean as if it were drops of rain instead of spray from an artificial fountain. When the water evaporated right in the sunshine there was no sediment or deposit at all. Every thing was as clean as a china closet. When I asked the engineer if that reservoir did not produce mosquitoes he replied, "Why, bless your heart, no. Just put some sunfish in your ponds or reservoirs, and they will take care of every 'wiggler.'"

Since he mentioned it I think I have been told the same thing before, but I had forgotten it. When I asked, "By the way, my friend, has not some scientific authority lately informed us that the presence of a very minute quantity of copper sulphate will prevent any possibility of typhoid or other deleterious bacteria from being present in drinking-water?"

"Yes, Mr. Root, you are right about it; and there is deposited in the center of the large reservoir quite a quantity of the crystals of copper sulphate; and by chemical analysis we are enabled to manage so as to have the water contain just enough of this fungicide and not too much. The water is also examined once every so often for the presence of bacteria or any other impurity." Thanks to the achievements of modern chemistry, we are, by the aid of scientific machinery, enabled with but little trouble to keep every thing just right to furnish the very best drinking-water possible, at an expense that is comparatively insignificent when carried on on a large scale as it must be to supply a city.

Mr. W. B. Gerrish, the engineer who so kindly showed me around, says if typhoid fever is ever found in Oberlin we must look elsewhere than to its water supply for the cause. The water, after being treated as I have mentioned, is passed through a beautiful filtration plant that does its work so perfectly that the water, besides being almost soft, is free, practically, from any sort of sediment. I suppose you are aware that the chemists employed by our State can detect the presence of these disease-producing bacteria now very readily; as a consequence, all the waterworks that supply drinking-water to even small towns in our State are practically safe. The State employs a man to make it his business to examine this water. Of course, it is next to impossible for the State to exercise a similar jurisdiction over the water from wells and natural springs belonging to each home.

This is an exceedingly important matter; for there are certain localities where fevers have prevailed and taken people off one after another for years until scientific investigation showed that the drinking-water was at the bottom of all the trouble.

When I was sixteen years of age my father moved from Summit County, where there is an abundance of soft-water springs, on to a farm in Medina County. There was a good well on this farm—that is, it was deep enough so the water was always cold. But I was a frail lad, and that hard well water kept me sick a good part of the time. The others laughed at me, and said it would be all right when I got used to it. But I soon discovered that, by drinking rain water entirely, I got along very well. Perhaps if I had used boiled water from the well it might have answered; but we did not know about boiled water at that time. For a year or two we had no cistern, so I used to keep my drinking-water in large stone crocks; and every little while there was a row in the camp because somebody used up my soft water through carelessness or because it was considered one of my notions. You can imagine, therefore, that I feel considerably gratified to find the great State of Ohio has decided as I did when a boy, that the *foundation* of good health is in having pure wholesome water to drink, and a water that does not contain an objectionable amount of unwholesome chemicals.

CATCHING SWARMS OF RUNAWAY BEES, ETC.

> *Mr. Root:*—Is this one of the humbugs? If there is any thing in attracting swarms of bees I think it would be in your ABC of Bee Culture, because you have every thing that is good. I think GLEANINGS is one of the best papers in the country for exposing humbugs and fakes. I know of one poultry paper that a whisky company offered $1600 for a year's advertisement, but they would not accept it. That is the kind of editors we want now.
> C. O. KELLEY.

Friend K., if you will turn to page 627, June 1, you will see something about a dollar book on catching swarms of bees. It seems Mr. Bryan does not want to send it to us; but as he keeps advertising it in various papers I think we shall have to keep after him. Now, my good friend Kelley, I think we shall have to get you to help us. You send a dollar, and get the book; and after you have looked it over send it to us and we will pay the dollar back; then I can write the book up. We will say to our readers that the advertisement mentioned in the above is as follows:

THE ART OF ATTRACTING AND CATCHING SWARMS OF BEES.
Copyrighted June 6, 1904. Price $1.00.
T. W. BRYAN, - FICKLIN, ILL.

Let me repeat: If the above is a book fairly worth a dollar in telling something not generally known about catching runaway swarms, we shall be glad to give it a free advertisement. From the clippings we have received from our readers we notice he is writing extensively for a certain kind of agricultural papers, and advertising his secret in the reading-columns. Here is a sample, clipped from the close of an article a column in length:

> ATTRACTING HOMESEEKERS.
>
> I soon became satisfied that, if I could hit upon some plan to attract these "homeseekers" to an empty hive already fitted up for them, I was certain to catch the queen and her entire swarm. To-day I am master of the situation, and can teach any one the art of fitting up empty hives so as to attract for miles the homeseekers from all points of the compass and thus catch all the swarms you may want, year after year. You will not even have to watch your hive, but some bright day you will wake up to the fact that a large swarm is hovering overhead and already settling on your hive, and that on the morrow they will send out thousands of workers to gather pollen and honey for you.

No such method of advertising would be permitted in any respectable agricultural paper.

JAPAN, AND SOME ADDITIONAL FACTS IN REGARD TO WHY THEY SEEM DESTINED TO CONQUER THE REST OF THE WORLD

We now learn from undeniable authority that Japan has had this conflict with Russia in mind for years past; that she has been educating her people in developing muscle, and leaving no stone unturned to commence and carry successfully to the end one of the biggest fights of a little nation against a great one that history chronicles. The whole world is now on the *qui vive* to discover how she accomplished this tremendous undertaking. The following clipping from the Chicago *Advance* hits the spot. Read it:

> The hearts of the anti-tobacco crusaders will be filled with joy when they learn that the Japanese police confiscate the smoking utensils of any youth under twenty, as well as his supply of the weed. Parents and guardians who knowingly permit the offense are liable to a fine, and dealers who furnish tobacco to the youth are also fined. This law was passed in 1900.

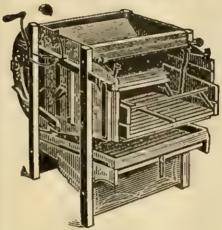
Now then, friends, with the above right squarely before your eyes, right here in the United States of America, will you permit your boys to take up the senseless, vulgar habit? and you who are older, even if you have already contracted the habit, are you going to persist in crippling yourself, mind and body, by outraging nature and nature's law? Whatsoever a man soweth, that shall he also reap.

AUTOMOBILES ON COUNTRY ROADS.

Of course, this is a matter that comes up more or less in our agricultural periodicals, and, as a natural consequence, these rural papers consider mostly one side of the question — that of the people who use horse-drawn vehicles. The *Ohio Farmer*, however, has seemed to be remarkably fair in the matter, and its editors are wisely looking ahead, taking a broad view of the matter. In the last issue of that paper a woman asks what can be done with the automobiles. After giving the Ohio laws in regard to the right of way, Prof. W. I. Chamberlain closes up with the following:

> In my own experience and observation the owners and operators of automobiles touring in the country have acted like gentlemen, stopping both car and engine, giving fully two-thirds of the road, and even getting out and leading frightened horses driven by ladies. In time I certainly hope that care, courtesy, and forbearance on both sides will accustom country horses to the new and strange vehicles. At present it is pretty hard on country dwellers.

The above accords with my experience and observation; and let me say to the *Ohio Farmer* people that the farmers are no more anxious than the owners of autos themselves to have all reckless, heartless drivers promptly fined and put in jail until they learn to respect the laws of our land.



The Chatham Takes Oats From Wheat

On Exhibition
Stock Yards, Chicago

Every farmer who grows succotash will be glad to learn that THE CHATHAM FANNING MILL has a new riddle that is guaranteed to make an absolutely perfect separation of oats from wheat. This wonderful piece of mechanism has about 4,500 different parts, yet is as solid and compact as a one-piece affair. You can take ¾ oats and ¼ wheat and get a perfect separation, or you can ***reverse*** the proportions.

With this Wheat-and-Oats Riddle you can ***go ahead and sow oats and wheat together***—as we guarantee you can make a perfect separation.

Here is a cross section of the new Riddle. You can see the riddle will let wheat through readily, but oats cannot get through. The riddle has a jumping attachment that keeps the oats jumping until they go over behind on the floor. **GROW SUCCOTASH!** The new riddle will help you obtain double crop value by sowing wheat and oats together, as it insures the perfect separation necessary to obtain the highest market prices.

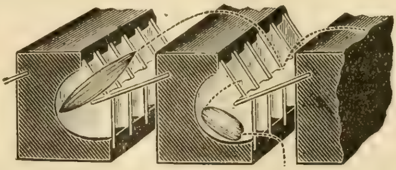
HERE'S MORE GOOD NEWS! We have also invented a Corn Screen that ***grades corn perfectly.*** The Iowa Agricultural College has recently demonstrated that it will grade corn 98% PERFECT! The accuracy of drop of the best Edge Drop Planters depends upon the perfect grading of corn used. The highest degree of accuracy has heretofore been 60 to 65%. The new Chatham Corn Screen has raised the record to 100%! This increased accuracy of drop means an ***increased yield*** of at least ***20 bushels*** of ***corn*** to the ***acre!*** The accompanying sectional view of Corn Screen shows the principle of operation.

The Chatham, in addition to the above improvements, has seventeen screens and riddles and will separate, clean and grade ***anything*** that can be handled by machinery. It runs by hand or power. It has a patent bagging attachment. The Chatham will add largely to the profits of any farmer. It will prove a money-maker for ***you.*** Write at once for free book. Every Chatham is GUARANTEED FOR FIVE YEARS. Easy terms. Send for free book "How to Make Dollars out of Wind."

We have Distributing Agencies in all Grain Growing States.

The Manson Campbell Co., Ltd., 176C Wesson Ave. Detroit, Mich.

Mfrs. Fanning Mills, Incubators and Brooders



Don't Cheat

your face with bad soap.
Enjoy the comfort and
luxury and safety of

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide how to Dress Correctly."

The J. B. Williams Co Glastonbury, Conn.

—THE—
Deming Knapsack Sprayer
leads everything of its kind. 6 gal. copper tank, brass pump, bronze ball valves, mechanical agitator. Easily carried. Pump right or left hand. Knapsack and Bucket Sprayer combined. We make 20 styles sprayers. Write for Catalog.

THE DEMING CO., Salem, O.
Henion & Hubbell, West'n Agts., Chicago.

THE CROWN Bone Cutter for cutting *green bones.* For the poultryman. Best in the world. *Lowest in price.* Send for circular and testimonials. **Wilson Bros., EASTON, PA.**

SPRAY PUMPS

The Pump That Pumps

SPRAY PUMPS

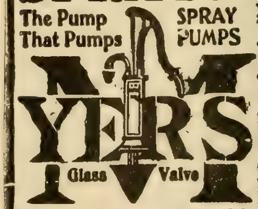
Double-acting, Lift, Tank and Spray

PUMPS

Store Ladders, Etc.

HAY TOOLS

of all kinds. Write for Circulars and Prices.



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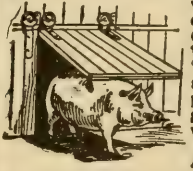

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, Ohio.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A.*
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange 4000 3⅝x5x1½ No. 1 sections for honey-extractor to hold L. frames.
Wm. H. Bright, Mazeppa, Minn.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. Swan, Centralia, Kansas.

WANTED.—A hundred healthy worker brood-combs—Hoffman frame. State price.
H. A. Ross, Evansville, Ind.

WANTED.—To buy 1000 lbs. extracted honey from the producer in Piedmont region of Carolinas. Name grade and price. H. C. Simpson, Catawba, S. C.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange White Wyandotte eggs or stock, for beeswax, old combs, or solar refuse. Small utility flock for sale cheap. Also 12 S. C. B. Leghorn hens. H. E. Crowther, No. Kingsville, Ohio.

WANTED.—The name and address of those anywhere in the U. S. who expect to buy honey in carload and less than carload lots during 1905.
St. Croix Valley Honey-producers' Association,
Glenwood, Wis.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. Hagen, 1632 Blake St., Denver, Col.

WANTED.—To exchange poultry and bees for any thing in the music line. I am a dealer in pianos, organs, and general musical merchandise, including sheet music. F. W. Walter, Staunton, Va.

Help Wanted.

WANTED.—A good man to work in apiary from about July 1 until Sept. 10.
E. W. Alexander, Delanson, N. Y.

WANTED.—Business manager in every town to manage branch offiice and superintend force of salesmen. Big money; experience unnecessary; no canvassing; can be handled with other work or business; references. Particulars on application.
Knight & Bostwick, Nurserymen, Newark, N. Y.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

For Sale.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. Reeves, Perch River, N. Y.

For Sale.—A few dozen cases of 60-lb. cans; good as new. G. L. Buchanan, Holliday's Cove, W. Va.

For Sale.—Old honey all sold. Write for prices on new crop. C. J. Baldridge, Kendaia, N. Y.

For Sale.—Stevens Expert rifle No. 5, 32 calibre, rim fire. H. C. McManus, Forestville, N. Y.

For Sale.—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. Jno. M. Wheeler, Winchester, Ky.

For Sale.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. Gray, Redwood Falls, Minn.

For Sale.—Italian bees, three-frame nucleus on Danz. frames with queen, $3.50; queens, 75 cts.
H. H. Jepson, Medford, Mass.

For Sale.—Buy of a specialist, honey in season. The most extensive bee-business in Michigan.
E. D. Townsend, Remus, Mich.

For Sale.—During July, 50 mismated queens at 30c, and 50 old tested queens at 50c.
B. F. Averill, Howardsville, Va.

For Sale.—2000 colonies of Italian and Holyland bees. Three-frame nuclei a specialty, and queens. Carload orders solicited. Prices on application.
The Hyde Bee Co., Floresville, Texas.

For Sale.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.
N. O. Penny, Vero, Indian River, Florida.

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. Hyatt, Shenandoah, Page Co., Iowa.

For Sale.—The busy man's method of rearing the best queens; saves brood, time, and patience; rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere.
E. H. Dewey, Great Barrington, Mass.

For Sale.—On account of departure, 150 two-story eight-frame colonies; most frames wired; Italians and hybrids; sold cheap if taken in the yards; ideal location and fast-growing retail market; one failure in 20 years.
G. P. Howell, 6101 Dauphin St., New Orleans, La.

For Sale.—Flood No. 2, June 8 and 9, 1905; 33,000 1⅞ and 7-to-foot sections wet; No. 1 at $3 50 per M., and No. 2 at $3.00. If folded up soon they will be as good as any. Satisfaction guaranteed. Big stock of dry goods. Can make immediate shipment of any thing you want in a bee line.
A. G. Woodman Co., Grand Rapids, Mich.

For Sale.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. Hildreth & Segelken,
82-84 Murray St., New York City.

For Sale.—Two and one-half acres of land, nicely covered with mesquite trees; good five-room house; 3000 yards steel tank full of water from the roof; located 400 yards from S. A. & A. P. depot, 50 miles south of San Antonio; house insured for $500; just the place for a bee-keeper or queen-breeder. To be sold at a bargain. Write or call quick, as this will be sold cheap.
Udo Toepperwein,
1322 S. Flores St., San Antonio, Texas.

PAGE-DAVIS COMPANY

Will prepare you, by correspondence, to do expert work. Instructor in each line has made notable success, personally, and has taught hundreds who are now holding high positions. Put a cross by the subject that interests you, cut out coupon and mail it to-day.

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address either office
Dept 234,
90 Wabash Av, Chicago
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Please send me a prospectus fully explaining how I can prepare for a position in the line after which I have marked an X.

Advertisement-writing.. ☐
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Street and No ....
City......................State................

I SHOULD LIKE TO CORRESPOND with any reader of GLEANINGS who might be interested in the purchase of 135 acres of land most favorably situated in North Carolina. Chance of a lifetime, at only $10.00 per acre. F. J. ROOT, 90 West Broadway, New York.

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MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

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Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us

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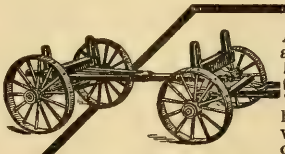
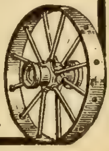


A low wagon at a low price. Handy for the farmer. Will carry a load anywhere a horse can travel.

Low Down Wagons
soon earn their cost on any farm.

Steel Wheels
for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to
Empire Mfg. Co., Box 91 H Quincy, Ill.



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of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

PRICES OF QUEENS	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO TEX.

2 FRAME NUCLEI FOR $2

WITH CHOICE UNTESTED QUEEN FREE.

All queens reared by the most approved methods. Nothing but the best imported Italian breeders used. Fifteen years of practical bee culture has taught me the value of good queens, and the best method of rearing them. Bees on L. frames. No orders filled before July 1st. :: :: :: ::

JAMES W. BAIN, MARION, OHIO.

Carniolans a Specialty ! !

ALSO breeders of Golden and Leather Italians. One untested queen, 75c.; six for $3.90; twelve for $6.00. Tested, $1.25. Best breeder, $2.50. Best imported, $4.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free. :-: :-: :-:

Carniolans.—We have bred this race of bees for 20 years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co., - Lake George, N. Y.

Place Your Orders Now.

ITALIAN QUEENS

Either GOLDEN or HONEY QUEENS

Our Goldens will come up to any other Golden strain. Our Honey Queens are what some term "Red-clover Queens." We always call them honey queens. :::

Before July 1.	1	6	12
Untested	$ 1 00	$ 5 00	$ 9 00
Warranted Tested	1 25	7 00	13 00
Tested	1 50	......	......
Select Tested	2 00	......	......
Breeders	5.00 and up.		
Two-frame Nucleus (no queen)	2 50	14 00	25 00

When queens are wanted with nuclei, add price of any queen wanted. We guarantee safe arrival of all queens and nuclei. Our breeders may be returned after 30 days, if satisfaction is not given. Cash must come with all orders. Orders are booked and filed in rotation. We book orders for next season. Safe arrival guaranteed of all stock. We ask a trial order. Do not send personal checks unless you add ten cents for collection.

D. J. Blocher, - Pearl City, Ill.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c —after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

Italian Queens!

Carniolans mated to Italian drones. Select untested, 75c; 3 for $2.00. Tested, $1.00; 6 for $5.00.

George W. Barnes, 138 N. Pleasant St., Norwalk, Ohio.

Bees, Queens, and Nuclei

From the best stock. We carry a full line of bee-keepers' supplies also. 64-page catalog sent free.

J. M. Jenkins,
Wetumpka, Ala.

PURE = ITALIAN = QUEENS

Highest award at St. Louis, 1904.

Anthony Biaggi,
Pedevilla, - near Bellinzona, - Italian Switzerland.

Imported Carniolan Queens!

A LIMITED NUMBER of choice imported Carniolan queens will be disposed of during July and succeeding months. I shall be in Carniola during July making these shipments which will be distributed from Washington, D. C. **Select Imported Queen, $4.00.** Write for rates for three or more. Address

Ralph Benton, 925 N Street, Northwest,
WASHINGTON, D. C.

The Busy Man's Method of Raising Bees, Price, 25c.

Choice queens..............75c each.

DEWEY'S HARDY HONEY-GATHERERS.

E. H. Dewey, Gt. Barrington, Mass.

Q·U·E·E·N·S

AND BEES

Golden or Leather Colored Italian, the best that money can buy anywhere.
THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

Queens Go by Return Mail.

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	.....
Straight five-band breeders	5 00	.....	.....
Two-comb nuclei, no queen	2 25	12 00	22 00
Full colonies on eight frames	5 00	25 00	.....

Quirin-the-Queen-Breeder, Bellevue, Ohio.

Doolittle's

Partner selecting a queen. If you want the full particulars send for their circular, giving a description of their fine northern-bred . . .

Italian Queens.

If you want honey-gatherers you need look no further. . We are now ready to send out .· .·

Choice Breeders.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer. Ventura. Calif.

Queens

California

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

If You Want

Lewis' Popular Bee-supplies

By Return Freight or Express,

—Send to—

York Honey and Bee Supply Company

LONG DISTANCE PHONE---NORTH 1559.

141-143 Ontario St., Chicago, Ill.

{Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells St. Cable Line from center of city to Ontario St.}

H. M. ARND, Manager.

A Full Line of Bee-supplies on Hand,

—Consisting of—

Hives, Sections, Shipping-cases

—everything used by the practical up-to-date bee-keeper. ❧ Catalog and prices on honey on application. ❧ If you want good goods at factory prices, and prompt shipment, send your orders. or call on us. ❧ ❧ BEESWAX WANTED—28 cents cash, or 30 cents when taking bee-supplies in exchange—delivered here.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '93 & 1903

Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case),	$8 50
In Chaff hives	9 50
Bees in any style of hive desired.	
Italian queens, tested,	$1 25
Italian queens, untested,	1 00
The best veils	40

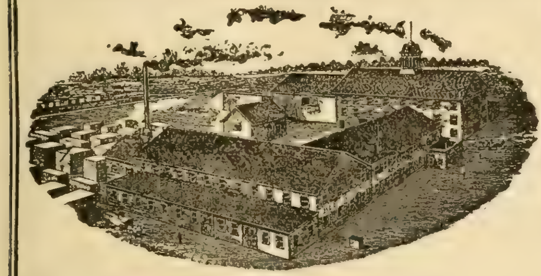
Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. A. W. Swan & Co., Centralia, Kan.

FOR SALE.—Bees, honey, land, and timber.
THO. WORTHINGTON, Leota, Miss.

FENCE STRONGEST MADE. Bull-strong chicken-tight. Sold to the Farmer at Wholesale Prices. Fully warranted. Catalog free
COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana.



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

DISCOUNTS FOR EARLY ORDERS.

DEALERS IN OUR GOODS.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
L. H. Myers, Lamar, Col.
Southwestern Bee Co., San Antonio, Tex.

Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, -:- Augusta, Wis.

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BASSWOOD
FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

SECTIONS
and Comb Foundation

Shipping-cases, Bee-smokers, Bee-veils, Bee-escapes, etc.

Abundance of goods ready for prompt shipment. Orders received in forenoon shipped same day.

Lewis' Goods in Indianapolis at Factory Prices----Cat. free.

Fine Italian Queens
from our yard here in the city as follows: Untested, 75c; select untested, $1.00; tested, $1.00; select tested, $2.00.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danzy., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

Hoosier-Italian Queens---By Return Mail.

Untested Queen	$ 75
Select Untested Queen	1 00
Tested Queen	1 00
Select Tested Queen	2 00
Select Breeding Queen	5 00
Best Imported Queen	5 00
Fair Imported Queen	3 00

North Tonawanda, N. Y., June 6, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I must write you pertaining to the nuclei you sent me. I put them in a hive the day I got them, and to-day they have it crowded with bees and brood. They are the finest bees that I have ever seen, both as to color and to peaceableness, and I shall stock up with them. Lots of bee men have been here to see them. Use my name to back them if you wish, as nothing could be finer. A. F. EILENBERGER.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., INDIANAPOLIS, IND.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

SPECIAL NOTICE

Special Notices

By Our Business Manager

BEESWAX MARKET.

Until further notice our price on average beeswax delivered here is 26 cents cash and 28 cents trade. Be sure to mark your shipment so we may know whom it belongs to when it comes.

SECTIONS AND FOUNDATION FOR PROMPT SHIPMENT.

We have a larger stock of sections than we ever had at this season, and are prepared to make prompt shipment of sections, foundation, and most other goods. There has been very little delay in orders all season except in a few cases where something special has held some orders longer than usual. Our agents generally are also in a position to make prompt shipment. If the bees get lots of honey, and you need more goods quickly, remember we are in a position to furnish them by first train.

SECOND-HAND FIVE-GALLON CANS.

We have to offer a quantity of second-hand five-gallon honey-cans in good condition for use again, especially for amber or low grades of honey. We offer the best of them at $4.50 for 10 boxes of two cans each; $10.00 for 25 boxes. We have some which are not so bright, and yet are honey-tight, that we will furnish at 10 cts. a box less. The boxes in which the cans are shipped are also second-hand, but will be put in good condition when shipped.

CAUCASIAN QUEENS.

We can spare a limited number of imported Caucasian queens, received direct from the best breeders in Caucasus. Prices as follows:

Extra select Caucasian imported queens,	$15 00
Select Caucasian imported queen,	10 00
Extra select untested Caucasian-Italian queens, from Caucasian mothers mated with Italian drones,	3 00
Select do	2 00

Orders filled in rotation. Delivery begins about July 15.

SPECIAL PRICE ON TIN CANS.

We recently secured a special bargain in half-gallon square cans. They are choice bright stock; but as the pattern differed slightly from the regular one they are now making, they closed them out at a special price. We have also an overstock of quart oblong square cans. While this stock lasts we will make the following prices for shipment from Medina only:

¼-gal. oblong square cans with 1½-inch screw, $5.00 per 100; $45.00 per 1000.

½-gal. square cans with 1-inch screws, $6.00 per 100.
½-gal. “ “ 1¼-in. “ 6.50 “
½-gal. “ “ 1½-in. “ 7.00 “

In 500 lots, 50 cts. per 100 less.

We have also a good stock of one and five gallon cans at regular prices.

HONEY-EXTRACTORS AT SPECIAL PRICES.

We have several extractors which have been bruised in shipment and whice we offer at special prices.

Two No. 15 Cowan extractors, with cast-iron reel. These are not the latest pattern, but practically as good as new. We offer either one at $9.50.

Two No. 5 Novice, somewhat scratched and shop-worn, otherwise as good as new. Will sell either one at $7.00.

One No. 5 Novice in good condition; has been used a little. Price $6.00.

One Dadant uncapping-can, in fair condition; can is of tin. Price $5.00.

One No. 25 Root reversible extractor. This is an old-style Cowan which we have used to experiment with, and have fitted with the Root reversing device. We offer it for $18.00.

Two Boardman solar wax-extractors. These are old-style, without metal bottom, and have been used to some extent We offer these at $5.00 each.

FAULTLESS SPRAYER.

There is nothing superior to this little device for killing potato-bugs, currant-worms, lice on stock or poultry, and it is worth three times its cost for spraying horses and cattle to keep off the flies. We have sold a great many hundred dozen in the past few years. They are not in our general price list, and we have a surplus stock which we wish to reduce, and we therefore offer the all-tin sprayer for 27 cts. each, three for 75 cts., $2.50 per dozen. A local canvasser could sell these easily at this season of the year at 40 or 50 cts. each. We have twenty or thirty dozen which we will furnish, while they last, at these figures. If ordered by mail, add 25 cts. for postage and packing.

GLASS HONEY-PACKAGES.

Anticipating a demand for honey jars and bottles we have put in two carloads of stock before the summer shut-down of the glass-factories, so that we are prepared to furnish the various jars listed in our catalog. We have also a few odds and ends of stock, such as we formerly listed, which we offer, to close out, as follows. We can not duplicate these when present stock is sold:

1-lb. tin-top tumblers, No. 789, 5 bbls. of 200 each, at $4.50 per bbl.

1½-lb. tin-top glass pails, No. 778, 2 bbls. of 100 each, at $5.00 per bbl.

Large lb. tin-top glass pail, No. 777, 1 bbl. of 150, $5.00.

Small lb. tin-top glass pail, No. 776, 1 bbl. of 200, $5.50.

1-lb. Oaken Bucket tin top, with wire bail, 1 bbl. of 150 for $5.00.

These prices are all a dollar a barrel less than we used to sell these tumblers and pails at. We have also a little loose stock which we will pack and include at same rate.

WIDE-MOUTH MASON FRUIT-JARS.

The carload price on Mason fruit-jars is over a dollar a gross higher this year than last. We carried over quite a large stock, which we will sell at the same prices as heretofore—namely:

Pint	doz., 52 cts.;	6 doz., $3.00;	12 doz., $5.75
Quart	“ 55 cts.;	“ 3.10;	“ 6.00
Half-gallon	“ 75 cts.;	“ 4.10;	“ 8.00

Triumph wrench, 15 cts. each.

Ball's waxed rings, 5 cts. per dozen. These are far superior to rubber rings for fruit-jars, and cheaper.

In addition to the regular style of Mason jars we have a stock of wide-mouth special Masons, with 3-inch opening. These are especially desirable for canning large fruit whole, or for packing chunk comb honey. These jars are of extra quality, and cost $1.65 per gross more than the regular pattern. As we do not list them we offer our present stock at an advance of 10 cts. per dozen, $1 20 per gross, on any size. They have zinc caps and rubber rings. We have no wax rings of the right size to fit these jars. They are a bargain at this price.

AIKIN HONEY-BAGS.

We did not include these bags in our catalog this year because we wanted to see them more generally tested in different sections of the country, and proven a satisfactory package everywhere before doing so. We are prepared to supply them, and have arranged for a 1-lb. size in addition to the four other sizes sold heretofore. We are now supplied with all sizes.

1-LB. SIZE, 3½x5½.

100	$ .65
500	3.00
1000	$5.50
5000 @	5.25

2-LB. SIZE, 5x7½.

100	$ .80
500	3.75
1000	7.00
5000 @	6.60

5-LB. SIZE, 7x10.

100	$ 1.20
500	5.50
1000	10.50
5000 @	10 00

3½-lb. SIZE, 6x9½.

100	$1.00
500	4.75
1000	8 75
5000 @	8.25

10-lb. SIZE, 10x10½.

100	$ 1.50
500	7.00
1000	13 50
5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over. We have some plain 2-lb. size of dark-drab paper which we can furnish plain at $2 00 per 1000 less than prices quoted above, or we can print a smaller special label in one color at above rates extra for printing.

Special Notices by A. I. Root.

"HOW TO KEEP BEES."

I had another of my happy surprises when Mr. Boyden put in my hands a pretty book with the above title. My first thought was that we had almost enough bee-books already; but when I noticed this one was written by a woman, and a noted woman too, I began to turn over its pages. One of the first things that impressed me was the beauty of the engravings. The one on page 50, showing bees at work, is something so artistic and wonderfully true to nature that I turn to this page and gaze at it again and again. I have often felt thrills of delight when gazing at the inside of a hive while the bees were building comb in the height of the season; and I have wondered if photography could ever catch the lights and shades, and that fresh newness, with every thing so perfectly clean and neat as is seen in the interior of the hive. Mrs. Comstock evidently caught hold of one of the very best specimens of this work, and her photographer evidently is an expert in his line. And, finally, the paper and ink are of the very best quality; and the pressman *also* must have been an expert in his line. The author is not only of great literary ability, but she has gone into the work with rare enthusiasm; and one can not but admire the skill and wisdom with which she decides just how much to say and how much to omit. She says in the preface that the book is prepared especially to meet the needs of the beginner, and is not a treatise for the professional apiarist. I am going to make a few extracts. In regard to bee-keepers' catalogs she says:

"Never were such breathlessly interesting pamphlets written; and I would add that, on the whole, they are the most honest and reliable of all advertising catalogs."

Now, ye brethren who make and send out catalogs, shall we not all try hard to deserve this rare compliment from such a good lady?

You will laugh when you read the book; in fact, I do not know but you will laugh all the way through at her quaint way of expressing and impressing great truths. See the following:

"If our poor human queens possessed this power of producing male heirs at will, much trouble would have been saved to many of them, and (to some of them) their heads"

And again on page 67:

"Mr. Root, who thinks before he speaks, suggests that the swarm follows the queen and the scouts through listening to their song, that of the queen being easily distinguished from the hum of the workers when on the wing; and that it is quite possible, therefore, that the noise, if loud enough to drown the voice of the queen, would cause confusion on the part of the flying bees and a consequent settling."

In regard to after-swarming, page 80, the writer says:

"This misguided kindness to young queens is as demoralizing to the colony as unwise giving of alms is in the human world, and finally a swarm may be sent off so small that a teacup would hold it."

I have often been impressed with the fact that bee culture has at different times been taken up by not only our best-educated men, but by some of the greatest humanitarians the world has ever known, and I quote as follows in regard to it:

"It is interesting to note that knowledge of bees has been given to the world by men who have attained the high peaks of scientific fame."

In summing up the bee literature of the day I beg to be excused for quoting her words in regard to our own A B C of Bee Culture:

"I never take into my hands that delightful book, 'A B C of Bee Culture,' without turning to the biographies of noted bee-keepers, and looking again at the faces there depicted, noting the noble forehead of Huber; the keen, scholarly face of Dzierzon, the judicial countenance of friend Quinby, and the beautiful expression of the venerable Langstroth."

Finally, with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, "How to Keep Bees," is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world.

While perusing its pages, as a natural consequence the reader will have a desire to get a glimpse of this bright woman who fascinates us by her vivacious and entertaining way as well as by her scientific knowledge. On page 110 there is a picture of a woman standing under an apple-tree in full bloom; and I have been bold enough to guess this woman is the author of the book, although the book itself does not give me any authority for saying so

Permit me to say, in closing, that Mrs. Anna B. Comstock, with all her education in other directions, is a member of the Society of American Wood Engravers. Perhaps this latter fact explains how it is that she is able to give us the beautiful illustrations that tell us so exactly what she is talking about all through the book. We are prepared to furnish it at publishers' price, $1.00 postpaid, or for $1.75 with GLEANINGS.

Convention Notices.

TEXAS BEE-KEEPERS' CONVENTION.

The Texas State Bee-keepers' Association will meet at College Station with the Farmers' Congress, and will be in session July 25 27. These annual meetings are usually largely attended, and are pleasant and profitable occasions. Visiting bee-keepers from other States are cordially invited to be with us.

W. H. LAWS, President.
LOUIS SCHOLL, Sec.-Treas.

Beeville, Tex., June 24.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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ITALIAN QUEENS.—Fine, northern-bred; originated from best long-tongued "Red-clover" breeders in the United States; work on red clover; bred in full colonies; under swarming influence; noted for their excellent honey-gathering, wintering qualities, and gentleness. Untested, $1.00; six, $5 00. Tested, $2 00; six, $10.00. After July 1st: 75c, $4.00, $1.50, $8.00. Satisfaction guaranteed. Write for full descriptive list.
Isaac F. Miller, R. F. D. No. 2, Brookville, Pa.

MY GOLDEN BREEDERS gave me over 300 lbs. of honey each, last year; two years ago over 400 each. Their untested daughters are 75c each, or $8.00 per dozen. Tested, double the above prices. Breeding queens, $5.00 and $10.00 each.
Geo. W. COOK, Spring Hill, Kan.

Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight. **The Bee & Honey Company, Beeville, Bee Co., Texas.**

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

JUNE PRICES

Untested, each.....$1.00; ½ doz., $5.00; doz., $9.00
Warranted, each....1.15; " 6.00; " 10.50
Tested, each........ 1.50; Select tested, each 2.00

A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

W. W. Cary & Son, Lyonsville, Mass.

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.

BROKEN UP AT LAST

The severe dearth of honey and pollen has been broken up by a fine flow of honey, and we are again rearing queens from our Superior Golden and Leather Italians; also, Gray Carniolan stock. :: ::

Untested, 75c; six for $4.00; twelve for $7.00.
Tested, $1.00; Select, $2.00; Best, $5.00.
Send for circular. **T. S. HALL, Jasper, Pickens Co., Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

S. F. TRECO, - Swedona, Ill.

Red-clover : and : Italian : Queens

Untested, 75c; $8.00 per dozen. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

The Demand for

MOORE'S - STRAIN - OF - ITALIANS

becomes greater each year; the following report shows the reason why:

EXCEL IN STORING CAPACITY

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never in my thirty years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel any thing I have ever had." ::: ::: :::

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.25 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free :: ::

J. P. MOORE, MORGAN, PENDLETON CO., KY.

Three and Five Banded... Queens

THE FINEST IN THE LAND—Untested, 70 cts. each; Tested, $1.00 each. No better queens can be had at any price. I have reared queens over 35 years. :: ::

DANIEL WURTH,
1111 N. Smith St., San Antonio, Tex.

RED-CLOVER AND ITALIAN QUEENS

ROOT'S STRAIN FOR SALE.
Untested, $1; Select Tested $1.50.
Charles A. Myers, Leipsic, Ohio.

Do You Need Queens?

The Best Queens by Return Mail!

We can fill your order. Our strain of three-band Italians are fine honey-gatherers; queens large and prolific; satisfaction guaranteed on every queen. Send for list. Untested queens, 75c; $8.00 per doz.; tested, $1.00 each.

J. W. K. SHAW & COMPANY
Loreauville, Iberia Parish, Louisiana.

Queens - Italian - Queens

BY RETURN MAIL

Try Taylor's 3-banded leather-colored and 5-banded golden queens—the best honey-gatherers in America. Untested, 75c each or $8.00 per dozen; tested, $1.00, or $10.00 per dozen; select tested, $1.50 each; breeders, the best, $3.00 each. I have been breeding queens for 17 years, and I know what a good queen is. No small queens sent out. I guarantee safe delivery. Send your orders to **J. W. Taylor, Ozan, Ark.**

The Best Stock

Nice three-banded Italian queens that are guaranteed to please, or money refunded. Ready to mail about June 10th, in any quantity, at 60 cents each. Free circular.

L. H. Robey, Worthington, W. Va.

A LARGE STOCK OF HIVES
ON HAND -- OVER 2000

So you see we can fill orders promptly. Sections nearly a million. Our storehouse in Syracuse will hold 20 carloads of bee-supplies —send in your order for anything needed. If you have any wax we will allow you prices quoted in GLEANINGS from time to time. We take it any time of the year. ∴ ∴

THE A. I. ROOT COMPANY
SYRACUSE - - - - NEW YORK

MONEY = IN = BEES
FOR YOU—INVESTIGATE—CATALOG FREE

New England Bee-keepers will find a complete stock of Root's Goods at Root's Prices in . . .

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Best shipping center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me. . .

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Up First Flight, 182 Friend St.

DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

Root's Goods
AT
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F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

Bees and Queens
from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

QUEENS

We have secured the services of one of the best Queen Specialists in the U. S. Over 20 years' experience in raising queens. Our yard is stocked with select breeders from the very best yard in America, and can send queens by return mail.

Prices to Sept. 1, 1905

Untested Queens - - -	$ .75
Select Untested Queens -	1.00
Tested Queens - - - -	1.50
Select Tested Queens - -	2.50

GRIGGS BROTHERS
523 Monroe St. TOLEDO, OHIO

Dadant's

Foundation

It excels. We guarantee satisfaction.

Bee - supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII JULY 15, 1905 Number 14

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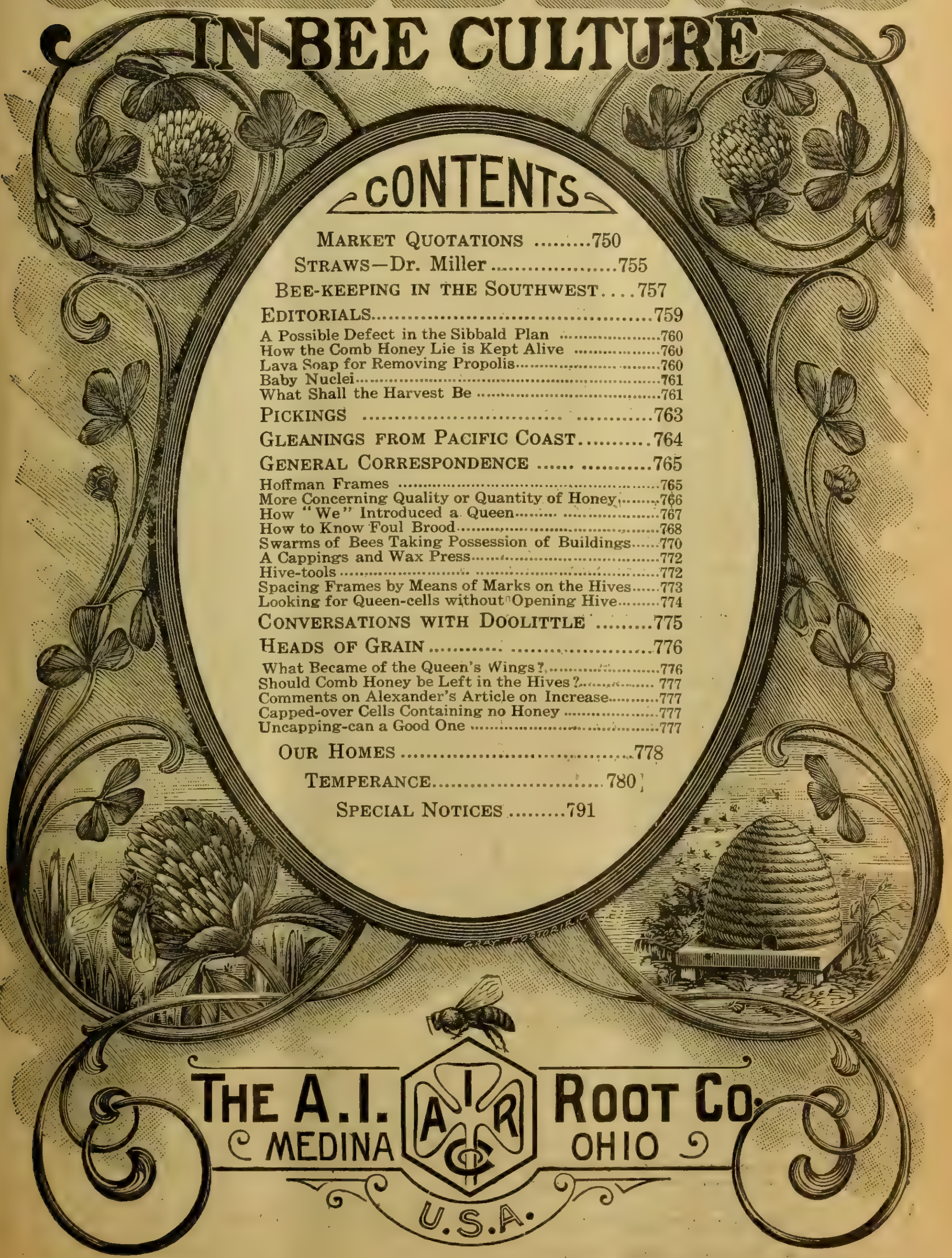
IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition

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Western Michigan

Root's Goods at Root's Prices.

I HAVE the largest stock and a full line of Root's goods, and can ship promptly. Don't put off your orders until you want the goods, and suffer loss and annoyance because they don't arrive in time to get the best results. My 36-page Illustrated catalogue will be sent you free for the asking, and a full description of the HILTON Chaff HIVE and SUPERS, with a comparison made by Michigan State Agricultural College, between the single and double walled hives, all free for the asking. ☛ Cash or goods in exchange for wax. .·. .·.

GEO. E. HILTON,
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Shipping-cases
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Foundation

We can fill your orders to-day. Big stock. Immediate shipments. Best shipping-point in Michigan. .· .· .· .·

A. G. Woodman Co.,
Grand Rapids, Mich.

ROOT QUALITY

The extra pains taken to make things just right,

That's Root Quality

It can be had in Michigan of M. H. Hunt & Son, and with it "the extra pains" in packing carefully and shipping promptly.

Telephone your "Hurry-up" orders to us.
Every thing for the bees and every thing "Root Quality."

M. H. HUNT & SON
Bell Branch, Mich.
WAYNE COUNTY

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let Me Sell You the Best Goods Made.

you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; will be mailed promptly, free of charge.

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled. Each variety bred in separate apiaries, from select mothers; have proved their qualities as great honey-gatherers. -:- -:- -:- -:-

Golden Italians.

Have no superior, and few equals. Untested 75c; six for $4.00.

Red-Clover Queens,

Which left all records behind in honey-gathering. Untested 75c; six for $4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested 75c; six for $4.00.

C. H. W. WEBER,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Ave

Cincinnati, = Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—As the season advances there is very little call for comb honey; in fact, no sales, and we make no quotations. Commission men are accepting any offer they can get for what little stock they have on hand. Extracted honey is in some demand. Possibilities of a big crop are holding prospective buyers back. We quote as follows: Fancy white, 7@7½; amber, 6@7; dark, 5½@6. Beeswax, in good demand at 29@30. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
July 7. 10 Vine St., Philadelphia, Pa.

BUFFALO.—The honey trade is about at a standstill; can occasionally sell a case of very nice white comb, but no demand for other grades of comb. We quote No. 1 to fancy white comb, 12@13; No. 3 to No. 2, 9@11; dark, 8@10. Extracted, white, 6½@7. Beeswax, 28@30.

July 8. W. C. TOWNSEND, Buffalo, N. Y.

SCHENECTADY.—Our local producers report prospect favorable for good crop of white honey. Market well cleaned up on old stock. No arrivals of new yet.

CHAS. MCCULLOCH,
June 28. Schenectady, N. Y.

MILWAUKEE.—Summer dullness seems to pervade the honey department of business, and the demand is very small and values are almost nominal. The supply continues to hold out, and there will be some stock that must be carried over to meet the new crop supply—both comb and extracted. We continue to quote No. 1 fancy sections, 12@13; No. 1, 11@12; dark or mixed quality, 8@10. Extracted white in barrels, kegs, cans, and pails, 6½@8; dark, 6@7. Beeswax, 28@30.

A. V. BISHOP & CO.,
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WANTED—Beeswax. We are paying 26c cash or 28c per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 E. Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.

THE A. I. ROOT COMPANY, Medina, O.

WANTED—Beeswax: Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
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WANTED.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. UDO TOEPPERWEIN, San Antonio, Texas.

WANTED.—Crop 1905 new honey. We have a customer wanting the first car. Would like to hear from producers, with lowest cash offers.

THOS. C. STANLEY & SON, Manzanola, Colo.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ills.

FOR SALE.—Choice extracted honey, new crop; also a fine lot of beeswax. Write for prices and samples to

J. B. MURRAY, Ada, Ohio.

FOR SALE.—10.000 lbs. comb honey. Can deliver July and August crop in September at 11 cts., f. o. b. in New York or 8 cts. in Havana; all fancy and A No. 1 white, in carriers of 170 lbs. net; nine cases to carrier, 24 sections to case. FRANK REIMAN, Nueva Paz, Cuba.

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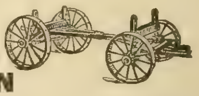

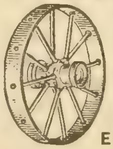

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PRICES.	ONE	SIX	TWELVE
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Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

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Two-frame Nucleus and Red Clover Queen 3.00

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The Danzenbaker Twentieth Century Smoker

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A GOLD MEDAL
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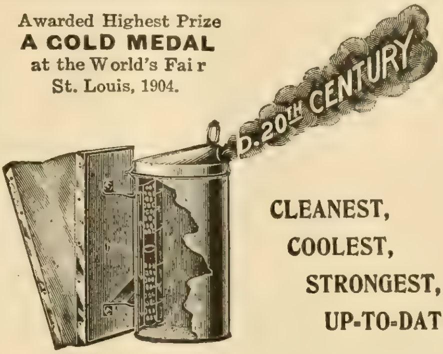
St. Louis, 1904.



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It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

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A R. HARDING, Editor,
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Why not make the fairs you attend profitable as well as instructive? Make a good honey exhibit and secure awards. Then use your time to advantage soliciting subscriptions to GLEANINGS IN BEE CULTURE. GLEANINGS makes very liberal inducements in regular commissions besides large cash prizes. This matter is worth looking into. . . . .

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Prizes : : : : : $10, $5, $3, $2

To induce bee-keepers generally to enter our Fair Contest we make the following very liberal prizes over and above the regular commissions earned. For the party sending the largest list of subscribers, $10; for the second largest, $5; for third largest list, $3; for the fourth largest list, $2. Subject to the following

CONDITIONS

First.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

Second.—That to win any cash prize the contestent must have to get at least 5 yearly subscriptions or equivalents.

Third.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Fourth.—That contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

Fifth.—That subscriptions can be sent in any time, but must be plainly marked "For Fair Contest."

Sixth.—That only one agent will be appointed for any one fair.

Seventh.—That advertising matter sent is to be carefully disributed to best advantage.

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Date..................................

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Fair Contest Department.

Please send agents' terms and enter my name as contestent in Fair Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

Date of Fair..................... *Name*..................................

Name of Fair......................... *P. O.*................................

I can use........*sample copies of Gleanings.* *State*...................

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Mr. R. F. Holtermann has invented what he calls a Queen-cell Detector. Near the center of the brood-nest he makes a very attractive place for the bees to build queen-cells. If they build cells anywhere, it is almost certain to be in this spot. Then he has an arrangement whereby it is the work of only a moment for the bee-keeper to get a view of this spot, and *see* if cells are being built—all this without any opening of the hive, or any handling of the supers or brood-combs This plan is described in the Bee-keepers' Review for June. Illustrations showing two views of the arrangement—both inside and outside of the hive.

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Both for Only $1.50

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO. $1.00 PER YEAR MEDINA, OHIO.

Vol. XXXIII. JULY 15, 1905. No 14

Stray Straws

By Dr. C. C. MILLER.

FIRST WHITE CLOVER I saw in bloom this year was May 27. First sweet clover June 19, two days later than J. A. Green reports.

A MEATY ARTICLE that of Stachelhausen, page 710, and I wish he'd write less for German papers and more for papers on this side. Easier for me to read the U. S. language.

T. W. MORTON asks, "Isn't it a fact that robbers know that a colony is queenless by the absence of the scent of the queen?" I don't know, but it looks a good bit that way.

CHARLES F. LASHIER winters in a frost-proof building run entirely by ventilators. Does he ventilate warm air into the building, or how does he keep the temperature up to 44 degrees?

LOTS OF TIME been lost by my bees, since clover opened, by cold and wet weather; but in spite of it they've made good progress, some colonies having four supers on, if Hershiser will forgive such presumption.

"DON'T PUT ON your sections until the bees whiten the top edges of the comb," page 720. That may be all right with you, friend Carey, but here it would hasten swarming to an objectionable extent. At least I have always thought so.

M. W. SHEPHERD wants to know "*why* the majority are bait sections" in Mr. Townsend's article, p. 594. Didn't the printer take liberties with the copy, and didn't Mr. Townsend write "the majority *use* bait sections"? [The printing is according to copy, doctor, but your suggestion seems good.—ED.]

BEG PARDON, Mr. Editor, but I don't believe bees would build cleats of fences into adjoining comb unless there were less than ¼ inch between the two, page 728. [While bees will make a groove in the comb directly opposite the post in the fence, there will be quite liable to be comb attachments. Moreover, a comb with four upright grooves in it will be a mean thing to uncap for extracting. So, all things considered, the fence ought to be a "one-sided" affair.—ED.]

E. H. HORNE asks how far his two apiaries should be apart, p. 725. Probably three miles or more. His plan of keeping drone-guards on would be all right, only with the large number of swarms that would be sure to be out at a time in an apiary of considerable size, with each colony coming out as he says every day for several days, there would be some unpleasant demoralization, swarms returning to the wrong hives, leaving their old homes badly depleted.

MY COLONY with the Dibbern trap has swarmed, and I supposed I could leave the queen in the trap a few days, but she has gone back into the hive. Quite a number of bees were with her in the trap, and I suppose the bunch favored her going down through the cone escape. [The case is very unusual of a queen going back through the cone. Generally, I think it is better to remove the trap with a queen as soon as the swarm has gone forth.—ED.]

EDITOR YORK and wife are here to spend the glorious Fourth, he to play with me, and both to eat strawberries that never traveled on the cars, and cream that came from a cow. [So you imply there is some cream that never came from a cow. The dairymen had better get after you the same as you are after the purveyors of the comb-honey canard. But, "all 'e samee," I should have liked to have had some of that cream, and some of those strawberries that were fresh from the vines.—ED.]

G. W. MEREDITH has gotten up a hive-tool that deserves consideration from the fact that one end terminates in a hook for lifting a dummy—an important consideration for those who use dummies. [An important requisite of any hive-tool is a hook somewhere about it. The Root Co. is seriously considering the matter of putting out a drop-forge tool for next season. We would have done it long ago, but no two bee-keepers agreed on the shape of the tool. The tool we shall put out will consist of a pry, a scraper, a hammer, and a hook, all in one.—ED.]

A SURE SIGN of laying workers I have always counted it when more than one egg was found in a queen-cell. June 13, in a colony with a last year's queen doing good work, I found a queen-cell with three eggs in it—the only queen-cell in the hive. Never heard of such a thing before. June 17—another case exactly like it, only an additional queen-cell with only one egg in it. Is it getting to be a common thing?

AS A POSTSCRIPT to that helpful editorial about greasy waste for smoker fuel, p. 705, allow me to repeat that any who live near railroad stations will find greasy cotton waste thrown along the road by engineers and firemen. [I had not thought of that; but there are large quantities of this material that can be gathered up on a mile or so of track, especially near depots and switching-points. The more our boys use this greasy waste, or printers' waste, the more they like it. The smoke is much more lasting, and, what is more, it is perfectly clean, throwing no sparks.—ED.]

MY! MY! MY! how the time does fly! Here is Ernest talking about a 14-year-old son, page 704, and it's hard for me to think of Ernest as any thing but a youngster himself, presuming a good deal to undertake to edit a bee journal. And he makes a good one too. [Yes, the young man is now as tall as his father, and he is now beginning to wonder if he couldn't floor him also. Well, I believe I am going to make a bee-keeper of him. He is not afraid of bees, and rather likes to help his pa, especially when I take the little Olds automobile to the yards and give him a chance to run it.—ED.]

THANKS, J. A. Green, for explaining, page 702, that the nearer sections approach a pound in average weight the greater variation in individual weights. It's because thinner sections will be built more uniform. If you had said that before, I wouldn't have thought, as I did think, that you meant that any average weight either more or less than a pound would be more uniform than the exact pound average. But I might have been smart enough to understand you, any way. Now, another thing. You say, page 702, the variation would be increased by making the section higher or wider. Please explain why.

SEEMS TO ME that stick for Coggshall to roll gunny sacks on, p. 704, is something new, isn't it? As he told it to me, he said to roll it up, "then take an ax and chop 'er up." He would hardly chop 'er up with the stick in; and if he pulled the stick out it would leave it rather loose. Or is it better to be quite loose? [If you will turn to Coggshall's article on page 74 for GLEANINGS of last year, you will see that he recommended rolling the burlap up on a half-inch rod. It is rather hard to explain on paper just how tight the rolls should be. We got very good results by making the roll about half way between a tight and a loosely wound roll.—ED.]

AT LAST we have the whole dread truth. After basswood lumber disappears, it will cost 75 cts. a thousand for four-piece sections, page 701. Pshaw! if that's all, I'm not going to lie awake nights fearing that I'll have to give up the production of section honey. [But, hold on, doctor! When lumber advances, labor will also advance somewhat. It is the experience of the Root Co. that our own labor has increased and is still increasing in cost. Well, suppose we put the price $1 00 per 1000 extra, you will have to add to that cost your own labor in putting the four-piece sections together.—ED.]

E. S. MILLER gives fine instruction for shaking swarms, page 713. But say, friend Miller, why don't you tell us what the right conditions are when you say bees will not abscond "if the conditions within the hive are all right"? And what makes you think "bees don't like to see daylight through the top of the hive"? For years my colonies had an opening at top at back end of hive, and I never knew any objection except that they didn't finish sections so well at the opening; but I thought that was the cool air, and not the light. I gave it up on account of that objection, but for the past two years have practiced it again, believing the gain more than the loss.

W. H. CRAWFORD wants to know, p. 606, whether he can succeed in having a queen fertilized in an upper story with a hole for the queen to get out, a laying queen at the same time being in the lower story, and an excluder between the two stories. I have succeeded, but more often the virgin in some way disappeared. [Yes, he can succeed generally during the height of a honey-flow, and at other times providing he feeds the colony a little syrup every day to keep it up to a high state of prosperity. But that is too much work and expense. A far better way is to use the baby nuclei. Yesterday, July 11, we took 42 laying queens from somewhere about 200 babies; and we figure we can from that number average 20 a day.—ED.]

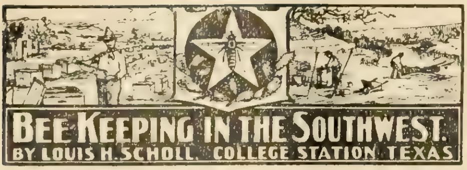
IT IS POSSIBLE that a queen should be Oslerized when two years old, but to carry it so far as to requeen every year would have the serious objection that one could not improve his stock by selection, for no queen can make a record unless she is allowed to live a full season after the year she is born. [If we have a fair season is it necessary that we should have another year in which to determine the value of a queen? One of the best queens I knew of was a yearling from Vernon Burt. This queen filled 24 sections, besides drawing out the foundation, in three days of 24 hours each. She was reared last fall, and her hive was stocked entirely with her own blood. Her bees are still jamming in the honey in a way that excels every thing else in the yard.

Don't you think she would not do equally good work next season in comparison with others? Well, the Root Co. have bought the queen for a breeder.—ED.]

NEW YORK reports an unfavorable season, page 706; but had their main harvest, basswood, shown up before July 1? [As will be seen elsewhere, the recent hot weather, together with the frequent warm rains, has given a new lease of life to white, red, and peavine clover. They are all in bloom, and give promise of a fair yield of honey. As the ground is too soft to cut the peavine the bees will have access to it until the sod is firm enough to hold a mower. A week or so ago we concluded the clover yield was about up; but I find that even white clover is very abundant, and the bees are working well on it. If this condition is universal there may yet be a crop from the clover belt. A peculiar season like this throws us all out of calculation.—ED.]

E. P. CHURCHILL'S description of a pry to move followers, page 721, I wonder if I'm the only one who can't understand it, especially that "one five with ends." [By reading again the paragraph in question I find it is not clear just how his hive-tool is constructed. Ordinarily I require a correspondent to make his description very clear, or furnish a photo or drawing; but owing to the fact that, during a part of my time, I have had to be out among the bees, I have let some things go by. And that reminds me that I should be glad to have our correspondents furnish us drawings or photos. We are perfectly willing to pay the expense of either. There are but very few things that can be clearly described by words alone; and even then a good drawing saves a heap of time in figuring out how a thing is made or used. Sometimes three or four drawings are submitted to the writer before one is pronounced correct. Where a small model can be made, by all means send one, and from this we can elaborate a good drawing.—ED.]

REFERRING to my question about a case of sections weighing 11¾ lbs. selling for more than a case weighing 12¼ lbs., the quality being the same in each case, you ask for something "specific," p. 640. Please look at market report for Chicago, in GLEANINGS for Nov. 1, 1903, p. 907, where you will find this: "To obtain 13½ to 14 it has to be perfect, and in sections that will not weigh over 14 to 15 oz. Sections that weigh 16 oz. and over have to be sold at from 1 to 3 cts. per lb. less." Let's figure, taking the average difference of 2 cts. per lb. A case of 11¾ lbs. at 14 cts. brings $1.64½; a case of 12½ lbs. at 12 cts. brings $1.50. Of course, that's not saying there's any thing wrong in the one who makes the quotation, any more there's something wrong in me for producing light-weight sections. The question is, Why should the market be such? It may be said that heavy-weight sections produced without separators are likely to be bulgy and leaky. But so may light-weight sections produced without separators be bulgy and leaky, and many a case of full-weight sections have I produced with separators. It looks to me that light-weights bring more per pound because the section can be sold with the understanding on the part of the purchaser that he's getting a full pound. [Perhaps we shall have to agree to disagree, for I can't see this as ycu do. I have traveled from ocean to ocean, and have talked with commission men in nearly all of our large cities. They have been annoyed with bulgy and leaky sections. If a 1⅞ section 4¼ square produced without separators runs a pound or a little over, it will not crate well with another section of the same class. Some bee-keepers are foolish enough to put two fat sections together, with the result that the whole case of honey has to be sold for less money. Mr. Burnett has been troubled just as we have been, again and again, by bee-keepers who think thay can economize by using fewer separators. There are many bee-keepers now who are using only one or two separators in a super. Indeed, I have heard it soberly argued in convention. While some may know their business well enough to get along with only two separators, the great majority do not. While a light-weight section may be bulgy, as you speak of, they are not liable to be so fat as to interfere with casing. A 1⅞×4¼ section is the nearest to standard; when separatored, it runs less than a pound. If the average is a pound or over don't you see that there are liable to be some fat sections that will leak? The only way to make a 1⅞ section average a pound is to go without separators, then some of them will be over full. A case of 12 sections weighing 12½ pounds is made up of sections that won't crate up well. If you were a dealer you would pay more for sections, every one of which would be sound and of uniform filling, than to take a case of heavier sections which would be quite liable to leak. If the standard section were two inches thick then the situation would be very different. I am only sorry, doctor, that you can not be in place of the wholesaler or retailer so that you wouldn't be like the "man up a tree." You say you have produced many a case of full-weight sections with separators. But this is not saying it was an average. Possibly you were referring to the 1$\frac{15}{16}$ section which you formerly used. The 1⅞ on the average, when produced with separators, runs less than a pound; and, if I mistake not, your sections are not an exception to the general rule over the country. Mr. J. A. Green hit the nail on the head when he said the 1⅞ section was made to fit a hive. If this be true, it was not to reduce weight for the purpose of deceiving. You formerly used 1$\frac{15}{16}$ sections. When you adopted new hives you also adopted the 1⅞ section with wood separators. It is no doubt true that an underweight section is also more popular with the purchaser—not because he is deceived, but because he can get something for 15 or 10 cents as the case may be.—ED.]



BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS

Provide water for your bees so that they will not bother your neighbors. It is very annoying to the neighbors to be bothered by *your* bees, especially where they "water" at the stock-troughs and bother stock. A little attention to this matter will save you trouble and friends.

* * *

Starvation during last winter and spring is the cause of a short honey crop in many localities this year. Carelessness on the part of the bee-keepers left many strong colonies short of stores. The season opened too wet to enable the bees to gather new stores; and, later, the sudden dry weather cut off the bloom. The bee-keeper who helped his colonies came out ahead in the deal. Another example has been set; but how many of these same bee-keepers will take heed?

* * *

At a meeting of the Business Men's Club, of San Antonio, the date was set for the next annual meeting of the National Bee-keepers' Association. The date is Oct. 28 to Nov. 1. This will be during the time of the International Fair, and the Fair Association has designated Oct. 28 as "Bee-keepers' Day" at the fair. Plans are being made to make exhibits of hives, honey, beeswax, and all sorts of things of interest to bee-keepers. In addition to an interesting convention it is proposed to entertain the delegates in San Antonio manner, and take them to visit the great bee county, Uvalde.

* * *

Basswood yielded heavily in some parts of East Texas this season, but the flow was accompanied by heavy and continued rains. The nectar, as it came into the hives, was the "thinnest and most watery" the bee-keepers there had ever seen. Horsemint was also in bloom, and yielded heavily at the same time, and it, too, was watery. The weather remained damp and cool, and "the honey acted in the combs and swelled out the cappings until they burst. That which was extracted after it was all sealed over and ripe (?) in the combs could not be kept secured, even in strong iron-hooped barrels."

* * *

The Texas Bee-keepers' Association meets in annual session July 25, 26, 27, at the Agricultural and Mechanical College, at College Station, during the time of the meeting of the Texas Farmers' Congress. The meeting promises to be a good one. The number of delegates to the congress is increasing every year. From 250 delegates at the first session several years ago, it grew to over 1200 last year. Cheap excursion rates over the railroads should bring many bee-keepers together. A good program has been made out. One of the addresses will be entitled "The Duties of each Member of this Association when the National Association meets in San Antonio next October."

* * *

For many years there has not been a rainy spell in the summer, such as we are having this month. The rainfall since June 21 up to to-day, the 27th, has been 13½ in., and it is still showering. The rain was badly needed. The severe drouth of several weeks has been broken, and prospects are much better. The season was too wet at first and too dry later, when the drouth set in. In consequence very little honey was made except in a very few favored localities. The rain is too late for the earlier yielders; but cotton is yielding now, and a fall flow may be expected in some localities. On the whole, however, the Texas honey crop will be short.

SLEEPLESSNESS AND HONEY.

Honey for sleeplessness I have found to be very helpful. It acts much as a soothing-syrup does. Many times, when I was still at home and it was impossible for me to go to sleep, I would get up after tossing about for several hours late into the night, and take a spoonful of honey. Many times I would grope my way down stairs in the dark to get it, and the "medicine" was effective. I have made it a practice, wherever I could do so, to finish my supper with some honey, and sweet milk if I can get it, as I am very fond of these. To persons who are troubled with sleeplessness I have recommended a light supper of bread, honey, and milk. When granulated honey can be had it is simply used as is sugar. In my boyhood days I used to think there was nothing nicer than a tumbler of rich sweet milk into which bread was broken, and this sweetened with a "great big" spoonful of well-flavored granulated honey. Such a dish is relished even now, and it "comes in" to "make out" my supper quite often.

FOUL-BROOD WORK IN TEXAS.

Two years ago a foul-brood law was passed by the legislature of Texas, but no appropriation for carrying out the work was made. A copy of this law was given in May 1st GLEANINGS. Through the urgent requests and agitation on the part of the bee-keepers, with the help of others in securing a sufficient appropriation, the legislature at its last session this spring provided for a sum of $800 per year for two years, to be used for the work of foul brood and other contagious diseases of bees. This fund will not become available until September 1 of this year; but preparations for the work are already being made here in the Department of Entomology, where the work will be under the direction of the State Entomologist. The work on contagious bee diseases will include both scientific, laboratory, and other investigations, to determine needed facts and information regarding the same; as, method of infection, resistance of germs and spores, method of treatment in eradication, fumigation, etc. A well-equipped bacteriological laboratory is being provided for, and it is hoped that many points about which very little is now known may be brought to light.

EVAPORATING UNRIPE HONEY.

Since learning of the trouble that some bee-keepers have in getting thin honey ripened that was gathered during a prolonged wet season, the question of how it might be overcome has arisen. I would suggest that the honey be extracted before it ferments in the combs. Put it in 60-lb. square cans, and heat the honey to remove the surplus water. Many of our Southern bee-keepers have, in connection with their apiaries, a brick oven over which granulated extracted honey is reliquefied. This is done by setting half a dozen or a dozen 60-lb. cans of the honey in an iron-bottom vat partly filled with water. The cans rest on sticks across the metal bottom to prevent scorching. The whole is brought to a boil, and the cans removed as fast as the honey is melted. Such a treatment could be given unripe honey when it *must* be ripened artificially. If care is taken this can be easily done without impairing the other qualities of the honey. Of course, I would not advocate such practice for unripe honey generally. I am a strong believer in having honey *thoroughly ripened* in the hive before taking it off, and protest against the practice of removing unripe honey of any kind except when it has to be done.

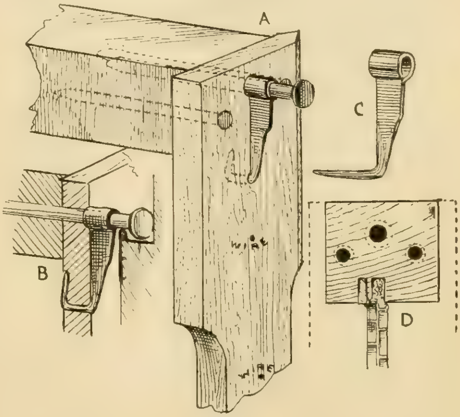
THE BUILDING OF DRONE COMB.

The following is translated from *Feld und Flur*, of Dallas, Texas:

> Many wrong views exist among bee-keepers in regard to the building of drone comb. Heretofore the view has been held that the drones, during the time of their development in the cell, require a far greater amount of honey and pollen than later as the fully developed insect, and that their breeding is, consequently, in a great measure detrimental to the bee-keeper. Through Planta's investigations it has been determined that the drone food contains only 1.17 per cent of sugar content, while that of the queen food contains 17.9 per cent, and that of the worker food not much less. The drone food is, therefore, in no way as great as is generally supposed, and the removal of the drone comb is absolutely without grounds. Under certain conditions the same is even most necessary and essential, not only for the breeding of the necessary drones for the mating of the queens, but also because the whim of the bees is increased, for the simple reason that, through instinct, they desire drone comb. A total suppression of drone comb is, therefore, very harmful, and a reasonable amount should at least be allowed them, especially before swarming and at the end of the honey season.

A NEW HOFFMAN-FRAME SUPPORT.

Where propolis is bad there is considerable trouble about breaking and splitting off the ends of the top-bars by which the frame is supported. In one of our yards a great many of such broken frames have caused a great deal of annoyance. The ends broken off the frames drop down into the hive and mash bees. Burr-combs are built in the free space thus made above the frame, and the bottom-bar is glued below so that it is impossible to remove the frame without breaking the comb; consequently different makes of frames were tried, and now I think I have struck one that will solve the problem. It is a great improvement over the old nail support, which had a way of tearing loose. This support has a reinforcement to it combined in the end spacer, which obviates this objection. The engraving will show the support in detail.



I have tried several of these frames, and found them the most satisfactory that I have ever handled. The frame ought to be made cheaply, as the ends of the top-bar and the upper end of the end-bar are cut off square. Both wood and extra labor are saved. The support is the strongest I have seen on any frame. The nail is a heavy eight penny, just the right size. The head is exactly the right size too, and prevents the frame from falling off the rabbet. Much better than frames with the wood supports does this frame stay on when the hive is handled and the frames are shoved crosswise. In putting up the frame, two quite large nails can be used in nailing on the end-bars. That already makes a stronger frame, and it is made possible because the nails can be driven into the thick wood part of the top-bar. In nailing on the spacer and the eight-penny nail it should be done as follows: The spacer-point, which is at a right angle to the rest, is placed in the pierced hole; the upper end with its loop is brought to its proper point; the large nail is inserted and driven down the right depth. Next the point of the spacer is clinched, which draws all up good and tight. You will readily see that, if the spacers are all of the same length when they are inserted in the hole pierced for them, and the loop brought into the proper position, it marks the point where the large nail should be driven. Thus all frames will hang even.

The combined spacer and brace is a dandy, in my mind. It spaces the frames and holds the nail in place so that it can not wear out at the top under the weight of the comb. It can be made very cheaply, I should think, much as are made the flattened staples on candy-buckets. Such a frame possesses the strongest joints, where the end-bars are nailed to the top-bar, that I have ever seen.

Editorial
By E.R. Root

BRO. HUTCHINSON, of the *Bee-keepers' Review*, and I do not agree as to the merits of the Hoffman frame and some other devices introduced in modern apiculture; but that does not in the least conflict with the cordial friendship that exists between us. In the bee literature of 25 years ago the man who dared to differ with another dared to make an enemy. I am glad that day has gone by now.

THE date of the next National bee-keepers' convention has been settled on for Oct. 28 to Nov. 1, at San Antonio, Texas. This is in the center of a great bee country, and the convention will be one of the largest and best, I will venture to say, that has ever been held in the history of the Association. Better make your plans to run down to Texas and see what a wonderful country there is there. See Convention Notices elsewhere for further particulars.

MRS. COMSTOCK'S BOOK, "HOW TO KEEP BEES."

IN relation to the review by A. I. Root, in our last issue, especially to that part of it where he spoke of the beautiful photographs in the book, we have received the following letter from Mr. Hutchinson which will explain itself:

> *Friend Root:*—I have just read your most excellent review of the new book, "How to Keep Bees," by Anna B. Comstock. I notice you speak in high terms of praise of the engraving on page 50, and wonder who was the photographer. The credit for that photo, also for the one on page 63, ought to have been given to your humble servant. I sold the negatives to Mr. McAllister for him to use in making lantern-slides, and Doubleday, Page & Co. got the photos from him, but did not know who made the negatives, which accounts for the error in giving credit. The publishers write me that they will gladly correct the error in the next edition.
>
> Flint, Mich., July 10. W. Z. HUTCHINSON.

HOW THE COMB-HONEY LIE IS KEPT ALIVE; THE "SMART ALECK" RETAILER.

I HAVE about come to the conclusion that the comb-honey lie receives its main source of inspiration, not from the yellow newspaper or magazine, but from the grocer's clerk, the "smart Aleck" who "knows it all." Manufactured comb honey? Yes, he knows all about it. He has the two kinds for sale in his store. Then he will pick out some dark-looking ill-flavored stuff, and call it "manufactured," while the nice-looking well-flavored article he will denominate as pure bees' honey. We have pretty near silenced the newspapers, but they will break loose again with some more "interviews" unless we can put a plaster over the mouth of some of these know-it-all grocery chaps. The Honey-producers' League is going at the matter in a proper and systematic manner—that is, giving out literature to the retailers so that they may have their eyes opened, for we must assume that some of them have been blind to the truth, because we bee-keepers have made no effort to throw the strong limelight of facts before them.

Bee-keepers everywhere should keep their dark and ill-flavored comb off the market. Feed it back to the bees; sell it to the baker—do any thing with it but put it up where it will kill the sale of all honey, good and bad alike. Better still, yank off instanter section supers whenever bad honey comes in.

LAVA SOAP FOR REMOVING PROPOLIS.

SOMETHING over a year ago the *Review* contained an item to the effect that lava soap was one of the best articles that could be used for removing propolis from the fingers. We tried it somewhat, and were pleased with its results. We laid in quite a stock of it, and soon found our employees were very partial to it for removing grease and general shop dirt. To-day I got my hands pretty badly smeared up with a yellowish-brown propolis, "and now," said I, "is a good time to test the lava soap." It had absolutely no effect on the propolis. I rubbed and scrubbed; but the more I lathered and soaped, the more it seemed to stick. I then went to the benzine-can, sopped my hands in the liquid, and soon had the satisfaction of seeing the propolis roll off. A second application of the soap made my hands nice and clean.

J. A. Green, a short time ago, in his department, said lava soap would not remove propolis, or at least not such as he had in his locality. He as well as the rest of us concluded that it was a case of where locality affected the result. I am now inclined to think it is a little in the propolis. The transparent red article, as I remember, would come off by the application of this soap; but the gummy yellowish-brown stuff would resist almost every thing except gasoline, alcohol, and the like.

WHAT SHALL THE HARVEST BE?

THE conditions portrayed in our last issue were somewhat discouraging; but within the last two or three weeks there has been a change for the better. While the rains have continued, the weather has been from warm to hot. In our own locality, for example, we have had ideal honey weather. The bees are working better now than they have been for some time back; and from stray reports from various States I judge this to be the condition elsewhere in the clover belt. White clover in our locality is still in bloom. Indeed, it will continue to bloom so long as we have these rains and warm weather. Red and peavine clover have not been cut to any extent for the simple reason that the ground is too soft to support a mower. Consequently we find the bees working well on both clovers that are usually cut long ere this. If the conditions throughout the other sections of the clover belt are the same as here, there will undoubtedly be a fair crop of clover honey for the market after all. Just now the reports are few and scattering, for the reason that bee-keepers hardly know what to say. The conditions have been so variable that it is impossible to bank on any thing. Honey has been coming in in our locality, interrupted by bad weather, for a period now of over six weeks; and if these warm rains continue we shall secure a fair yield of honey yet.

So far there are no reports to indicate a large amount of honey actually secured; and all we can say is that the prospects are much more favorable than we had any reason to suppose they would be, two or three weeks ago.

In Colorado, under date of June 24, Mr. Frank Rauchfuss, Manager of the Colorado Honey-producers' Association, writes:

> *Mr. Root:*—The crop situation has not improved any in Northern Colorado since I wrote you last. The best reports I got were, "Bees are making a little more than a living." In some places feeding has to be kept up. Alfalfa is now in bloom, and farmers are cutting it for hay to quite an extent already, so it does not look as if we should get much out of the first crop of alfalfa.
>
> Denver, Colo., June 24. FRANK RAUCHFUSS.
>
> *Later.*—Since making my crop report on June 24th there has been no change for the better. The vicinity of Denver, and all the country north of Denver up to the Wyoming and Nebraska line has no surplus to show yet. In the southern part of the State there was a very light honey-flow for a short time, but I am informed that this ceased about ten days ago.
>
> Along the Grand and Gunnison Rivers, in the western part of the State, there has been a light flow, and some surplus has been stored, but very little finished comb honey in sight even there.
>
> THE COLORADO HONEY-PRODUCERS' ASS'N,
> July 10. Frank Rauchfuss, Sec.

Since the foregoing report was made we have received the following from the California National Honey-producers' Association:

> CALIFORNIA.—Southern California will have about one-third of a crop. Central California, prospects are for a fair crop. F. E. BROWN.
>
> COLORADO.—Crop will be about 60 per cent of full crop. Worms are destroying honey-plants. Eastern slope cold and windy. J. U. HARRIS,
> National Bee-keepers' Association.
>
> ARIZONA.—Honey crop to date is lightest we have had in many years. WM. ROHRIG,
> Secretary Arizona Honey Exchange.
>
> TEXAS.—Fair crop expected.
>
> Eastern.—Too early to estimate. Weather has been unusually cold and rainy.
>
> CALIFORNIA NATIONAL HONEY-PRODUCERS' ASS'N.
> Los Angeles, Cal., July 6. H. J. MERCER, Sec.

PROGRESS OF THE BABY NUCLEI AT MEDINA.

SOME two or three weeks ago we were becoming a little discouraged over our baby nuclei, but now they are panning out well. Out of 200 babies we took one day 42 laying queens. We have been taking out since all the way from one to two dozen per day. The dual plan of introducing seems to do as well as it does in larger full-frame nuclei. In some cases we take a laying queen out of a baby box, and, in four days after, take out another. As explained before, in most of these minatures there will be two queens at a time—a virgin that has been released and accepted, so that she is free to take her wedding-flight when she pleases, and another one caged. As soon as she is laying, the other virgin already caged for several days in the baby is fixed so that the bees can eat out the little plug of candy and release her. Theoretically, when conditions are ideal we can take out a laying queen every four days; but practically I do not suppose we will come any nearer than one a week, and in unfavorable weather not as well as that. If it were not for the dual plan we would fall far short of these figures.

Of course, further developments may cause me to change my mind; but the introduction of this miniature-nucleus plan, I now think, is the longest step in advance that has been made in queen-rearing for many years. Two hundred bees apparently can do what ten or fifteen times that number could on the old plan with large frames.

I am free to admit, however, that, when a dearth of honey comes on, we may not be able to secure any thing like as good results as we are getting now; but until within two or three weeks, as I have stated, these little clusters were very disappointing; but we were given to understand that brood was not essential. We have learned since that there must be in addition a virgin or a cell and daily feeding if not well supplied with stores in one of the little combs. I see no reason why the honey-producer with a dozen or so of these babies can not do his own requeening at a very slight cost. A couple of seven-to-the-foot sections in a small box will do almost as well as a factory-made outfit.

EXPERIMENTS IN RENDERING WAX; THE VALUE OF A WAX-PRESS.

IN buying up an old bee-yard we obtained a lot of old crooked combs of doubtful history, and we therefore decided to melt them up. Two or three times lately correspondents have said that the old-fashioned way of putting old combs in a cheese-cloth or burlap bag, immersed in a kettle or wash-boiler of hot water, would yield as much clean wax as any of the modern steam-presses. It was argued that the bag of comb under water, frequently punched with a stick, until the comb was thoroughly broken, would yield up all the free wax to be obtainable by any process. I told our wax-room boys to test this out with these old combs very carefully. A large burlap sack was made and into this was packed a quantity of combs. It was then immersed in a big extractor-can of boiling water—the water kept hot by means of a steam-jet. The bag was thoroughly punched for perhaps half an hour, then weighted down. The surface was next dipped off. Last of all, the contents of the bag were then put into the German wax-press and squeezed. Now for the results: In some cases the amount of wax taken from the bag punched under water was about 33 per cent of the whole amount obtainable, and other times 50 per cent. I had supposed the amount would be much larger; but when the refuse in the bag was put into the press we found we were able to secure twice and sometimes three times as much; and, what was more, the wax was cleaner and better The wax skimmed off from the hot water contained a large amount of dirt, while that from the steam-press was comparatively clean and yellow. I am satisfied from the experiments, which were repeated again and again, and always with the same results, or practically so, that the old bag plan of melting beeswax used to waste somewhere about 50 per cent of the amount of wax in the combs.

This may sound a good bit like shop talk. One doesn't have to *buy* a press. He can make a very good one out of a half-barrel, with a 4×4 oak studding for a lever.

ARE WE RETROGRADING?

BRO. HUTCHINSON, in commenting on an article that appeared in the *Rural Beekeeper*, by L. Stachelhausen, criticising the Hoffman frame, in the last *Review*, says:

> I know that good practical bee keepers (some of them) prefer the Hoffman frame, and the argument used is that hired help can't space them in a regular manner. The man who has not in his eye enough of mathematics or adaptability enough to be taught to space frames with sufficient exactness is too low in the scale of intelligence to be given a place in the apiary. Accurate spacing of frames is a small problem compared with some that must be learned by the really helpful helper.
>
> I am sincere in believing that the addition of projections on our brood-frames, lock-joints (so-called dovetailing) to the corners of our hives, reversible bottom-boards, or those with a "drop," covers with more than simple cleats to prevent warping, are simply steps in getting away from a simplicity that should be cherished as the apple of the eye.

If Bro. Hutchinson has an idea that the only merit of the Hoffman frame is regular spacing, then he has failed to see some of its good points. Personally I never had any trouble in spacing the old-style Langstroth; but the great mass of small bee-keepers whom *I* have run across either don't know how far to space them or haven't that mathematical eye. I like a self-spacing frame after the pattern of the Hoffman or full closed end—one that I can handle in twos and threes. I do not like, for example, to have to *finger over each frame* as one has to do with the old-style Langstroth to get the brood-nest in proper shape. I have been out working with the bees more this season than usual, and I have not yet used a pry of any sort on our self-spacing frames (I don't mean that a pry is not a convenience and even a necessity when the propolis is cold).

As to the lock corner of the hives, it certainly makes a stronger joint; and where the hive-bodies are handled roughly or moved to outyards this is quite an item.

Regarding the hive-covers, we should all like it if we could get back to the old flat cover; but the scarcity of lumber makes this impossible. It is *not* a question of *preference*, but a question of *availability* and *price*. One can, in a small way, perhaps, buy a few wide boards for his own use—wide enough to cover his hives, with a simple cleat at each end; but the big factories can not begin to do it, and are compelled to use three-piece covers. Really I can not see that the three-piece cover, Hoffman frame, Dovetailed hive, and bottom-board, are any more complicated than Mr. Heddon's divisible-brood-chamber hive with closed-end frames and thumbscrews, break-joint slat honey-board, and "drop" bottom-board,* which Mr. Hutchinson recommends in his book, "Advanced Bee Culture." If "simplicity" is so important a desideratum, then the Heddon hive (and a good one in my opinion) should be discarded.

BASSWOOD in this locality has not amounted to much. The young trees gave down liberally whenever they blossomed; but generally this seemed to be an off year for blossoms.

DO not put on to the general market No. 2 and off and mixed grades of comb honey. Feed such back to the bees, extract them—do any thing with them rather than spoil the market.

IF the honey crop this season could be measured by the amount of clover in bloom as compared with former years, we could flood the market several times over. No danger of that.

AS we have said before in these columns we say again, sell your honey early. New honey, right off the hives, always has the advantage. Consumers learn to expect new honey just as they expect new maple molasses. It is generally poor policy to hold back, waiting for better prices. Anyhow, manage to get it sold before the holidays—the sooner the better, as a rule.

THE Wooster (Ohio) Summer School of Teachers made us a visit a few days ago to look over our bees, and to post themselves on one department of their nature-study work—bee culture. They came over in a body, 150 strong, headed by Prof. E. F. Bigelow, one of the department editors of *St. Nicholas Magazine*. We will give you a picture of them later, after we had inducted them into the science of bee-keeping. More anon.

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* This bottom-board is made now by most factories, yet in the quotation just given it is condemned.

Pickings from Our Neighbors' Fields
By
"Stenog."

It is an encouraging sign for bee-keepers when the press in general devotes so much space to illustrating the mysteries of the hive. The Cleveland *Press* for June 20 gives about half a page in describing H. G. Quirin's methods of raising queens artificially at his yards in Bellevue, Ohio. Further than that, the article is well illustrated. The writer was in the dark, however, on some points. He says, "Mr. Quirin is the only man who is known to be successfully hatching out queen-bees by artificial methods." That statement will make G. M. Doolittle and E. L. Pratt open thejr eyes, I think, as well as many others. Furthermore, the reporter conveys the idea that it is a great secret, while in fact it is as well known as the use of the incubator for hatching chickens. In reading interviews of this kind one is often surprised to see how much behind the times in point of general information the reporter is. But the article as a whole is very gratifying, as it indicates the general interest in bees from an economic standpoint. It will be interesting to note the estimated annual income of Mr. Quirin from his bees, saying nothing about the net profit. We note:

3000 queens at $2	$6000
6000 lbs. comb honey at 12½	750
2000 lbs. extracted honey at 9	180
100 colonies of bees at $6	600
100 nuclei at $2.50	250
Total	$7780

The reporter says Mr. Quirin beats Dame Nature at her own game. Not at all. Nature has no game. Mr. Quirin simply enables Dame Nature to work to better advantage than is usually the case.

* * *

Mr. J. S. Barb, of Spokane, Trumbull Co., O., made us a visit last week. To the great surprise of the writer he said he wanted to "see Stenog" before going home, and he did. Mr. Barb is a veteran in bee-keeping, and has read this journal for 21 years. He mentioned a skep which his grandfather made and used in 1821—84 years ago. I'm looking for somebody who can beat that. I understood Mr. B. to say his family had occupied that place since that time. It is a pleasure to meet these old bee-keepers.

* * *

The *Leipziger Bienenzeitung* sounds a warning note to those who climb trees to capture runaway swarms. A German bee-keeper in Neuschleibach, Germany, had the misfortune to fall from a ladder which he had ascended to get a swarm. Immediately under him was a picket fence on which he fell, literally impaling himself through the abdomen. He soon died in great agony.

THE AMERICAN BEE-KEEPER.

The *American Bee-keeper* for June is fully up to its average point of interest, especially in editorials, which constitute a remarkably large part of that journal.

The following, concerning artificial swarming, is worth keeping:

> We would caution all inexperienced bee-keepers who are planning to experiment with artificial swarming to be sure that the bees, before forcing, are given an opportunity to fill their honey-sacs with honey or else supply the new colony with a comb of honey. In default of this, give them a feeder of honey and water, half and half. If the honey is very thick, more water may be used. Use warm water in mixing, and let the mixture become quite cold before giving it to the bees. If honey is not available use sugar and water, taking one part of sugar to three of water. Never use sugar if it can be avoided, for, while it is a perfectly good food, so far as the bees are concerned, it gives good ground for charges of feeding sugar to make honey.

* * *

If the condition of things implied in the following, under the head of "Dupes," really exists, something ought to be done:

> It is a strange commentary on the simplicity of bee-keepers, their blindily following biased advice, wasting money on one fad after another, while the vendors of the constantly changing hives and tools wax rapidly rich.

The tone in which the above is written rather leads one to think that the writer penned his criticism more in a spirit of pettishness than in the tone of true criticism. If improvements are to be tabooed, what shall we do? What was the first typewriter compared with those of to-day? or the sewing-machine? or the locomotive? These so-called "fads" are suggested by the experience of bee-keepers; and I am glad to note that the W. T. Falconer Mfg. Co. is not much behind the procession in supplying needful things to the bee-keeper; nor Lewis and others who might be mentioned.

* * *

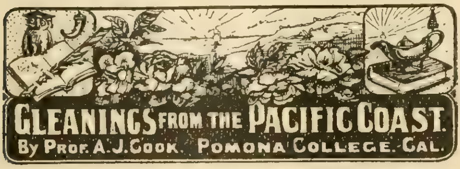
The venerable J. B. Hall, of Canada, seldom writes for the press; but in the journal under review he says, in speaking of Canadian honey:

> As a honey-producer I was not aware that this part of North America produced a superior quality of honey until long ago, when the American Bee-keepers' Association held its annual meeting at Toronto during the time of the great annual show, and, of course, visited the exposition. The first man to call on us was our friend Dr. Miller. I did not "know him." His question was, "How do you get it so nice?" I asked him if he was from south of the line, and he said that he was. I had to inform him that nearly all good things, from men down, were produced far north. At this he laughed.
>
> Our next visitor was our good old friend A. I. Root, of Medina. He stated in his journal, GLEANINGS, that it was the best honey that it had ever been his good fortune to behold, and that he was not prepared to see old Mother Earth make such an array of honey of such a choice quality.

* * *

A correspondent in New York city suggests that correspondents use capital letters when speaking of the four seasons. The editor says: "He gives no reason for desiring this change, and none is apparent to the editor." Right you are, Mr. Hill.

Only when the seasons are personified should they have capitals. The same correspondent suggests that all slang be omitted from the bee journals. There is slang and slang. Some so-called slang is too coarse for print, while other slangy expressions are so directly to the point that they soon become universally adopted. The slang of to-day is the language of to-morrow. It is easy to use slang to too great an extent. In descriptive matter, such as the bee journals use mostly, plain and direct language is the best. We expect a good joke in nearly every sentence a Hasty writes, but none at all from a Doolittle; and yet each is a model writer in his way.



GLEANINGS FROM THE PACIFIC COAST.

By Prof. A. J. Cook. Pomona College. Cal.

ARID REGIONS.

As some of our most excellent bee localities are in arid regions, these sections become of more than ordinary interest to bee-keepers. By "arid regions" we refer to those with limited rainfall. Different writers place the limit at varying amounts; but I should say that any country that has an average rainfall of less than 20 inches—some put it at 25, others at 30—might very properly be regarded as arid.

Another definition for an arid region might be one where general farming could be carried on only through irrigation. There are many arid localities in our country included in the plateau regions, or region of the great parks—Colorado, part of Utah and New Mexico, etc.—the Basin region, that section of our country between the Rocky Mountains and the Sierra Nevada, including Nevada, Utah, and Arizona, and the southern part of California. It is true that in these countries there is sufficient rainfall to grow a grain crop without irrigation, though even this is uncertain, for often the rainfall is so slight that there is not enough moisture in the ground to carry the crop through.

There are some striking peculiarities in the soils of arid regions. There is always likely to be in our country, and, in fact, in all countries, a great deal of native fertility in the soil unless it has been washed out. Of course, it has not been washed out in arid regions, and so those who have not been used to such soils are always surprised, upon first examination, to note their exceeding fertility. These soils are not only very rich but are often very deep. I heard Dr. Hilgard remark once, facetiously, that the Southern California farmer is a very fortunate man, for, although he purchased but a single farm, he would have several, each on top of the other. It is well known that in the East we often entirely destroy the fertility of our soil if we drag the subsoil to the top. I had an interesting experience on my place here at Claremont. Although I graded my lots down some feet, I found that the entire lot, after the grading, was wonderfully productive. In arid regions, then, if we only have water, we usually find that we can count on wondrous fertility. This is, perhaps, the greatest reason why, with plenty of water, agriculture is so profitable in arid districts.

VEGETATION IN ARID CLIMES.

Every student of plants is aware of the great amount of transpiration that takes place in the growing of any of our farm crops. I have seen the statement that a single rank crop of red clover or alfalfa would carry off, through transpiration, six inches of rainfall. We can see, then, that it would be greatly to their advantage in an arid region if the plants could in some way lessen this transpiration. By "transpiration" we mean the moisture sent off by the leaves, and thus lost to the plant and soil. It is very interesting, in studying the plants of an arid region, to see how they have managed, if we may so speak, to lessen this loss of water. It is the leaves, or foliage, that carry on transpiration. In all of the yuccas and cacti we have no foliage, and the stems do the work of leaves. Here, then, the surface is reduced to the limit, and this form of vegetation can endure the greatest excess of drouth. We understand, then, why we see the great cacti in the deserts of our mid-continent. In humid regions the leaves are broad, as this fosters transpiration and encourages growth, for here water is plenteous. In arid regions, on the other hand, the leaves are reduced in size, and often finely divided, and thus again we have the leaf surface at a minimum. In other cases we find the leaves varnished, and often very viscid, both of which conditions lessen transpiration, and so save the plants in time of extremely dry spells.

Another way that this same result is accomplished is by fine hairs or minute scales on the plant, which serve greatly, without doubt, in many cases, to lessen transpiration and conserve the moisture. This explains the white appearance of white sage and many other plants of arid districts.

There is just one other provision that I think of that works toward this same end. Of course, the direct rays of the sun would hasten transpiration; therefore we often find the leaves turned so that their edge rather than their face may be exposed to the direct sunlight.

PLANT ECCENTRICITIES IN ARID REGIONS.

When I first came to California I was constantly surprised at the curious ways of many of our plants, as they seemed to act almost as though intelligence might direct them. We have only to remember that, in all arid regions, vegetation at certain seasons would be very slight. Perennial plants, unless remarkable, could not exist; so plant-eating insects, herbivorous birds and mammals, would often be put to it to get a sufficient food supply. The plant, then, that would be saved from such animals must be wondrously protected. Many of these plants have a way of hiding from such foes, for we find them growing only amid cacti or thick brush, often thorn-clad, which prevents the approach of hungry bird or mammal. Many other plants are bitter, and so not toothsome to hungry herbivore. Again, we find many plants sticky with a viscid secretion which is, without doubt, repugnant to all vegetable feeders. Many plants, like the various cacti, are a veritable pin-cushion, except that the needles in this case are all with their points out. Woe be to bird, beast, or man that comes against these spinous cacti. They are cruel in their thrust, and we do not forget too great intimacy with them for hours after we first feel their prick.

Another peculiarity that specially marks arid vegetation, and which is of much importance to the bee-keeper, is the very long period of bloom and the varying period of germination of seeds of the same plant. White sage will be in bloom for weeks, and the wild buckwheat from early June until frost. This is obvious provision to meet the fitful seasons of rainfall. With the first rainfall some seeds germinate. If early rains are frequent and abundant these mature, and all is well. If, on the other hand, only late rains come sufficient to carry the plants along, then the later-germinating seeds will sprout and grow while those that first germinated with the scant early rains will come to naught; yet the plants will be multiplied by the later plants. A long blooming period is likewise helpful, as, with scant rain, the early bloom may be all that will have vigor to mature the seeds; while in the same seasons of drouth, when all plants will have a sorry struggle, late fogs and damp may favor the later-blooming flowers, and they alone have vigor to develop the seeds. In case of very late bloom, like that of the wild buckwheat, the later flowers may be helped by the early fall rains of the next season. Indeed, we may well believe that the two peculiarities last mentioned are the direct result of our arid seasons, and they are, beyond question, the reason that we are so remarkable as a honey region.

EARLY HONEY WHITEST.

We have all observed that the early honey is whitest, and likewise of pleasantest or mildest flavor. Clover and linden in the East are finer than the goldenrod and boneset. Here the sage is matchless, while the buckwheat, like the honey from the cultivated buckwheat, is dark. Our buckwheat is not very dark nor yet very strong, yet it is amber, and never can compete in the market with the delicious and beautful sage honey. In arid regions the soil gets very dry as the season advances, and only the plant with very long tap roots will do much late in the season. Thus in arid regions the honey and all other plants, with very slight exceptions, will be early, and so we are sure of beautifully white and exquisitely flavored honey. Thus such arid regions as Southern California will not only make, occasionally, records of astonishing crops, but the product will ever top the markets for price, as the color and flavor must be of the best, from the very conditions of growth. If we could only eliminate our seasons of very scant rainfall, then we should have the banner honey region of our country, as we have the most beautiful climate and scenery.

HOFFMAN FRAMES.

Wood Screws as Frame-spacers.

BY W. H. LEWIS.

Nearly all the writers on the frame question, directly or indirectly admit that self-spacing or fixed-distance frames of some kind are an advantage. I suspect that those who advocate the Hoffman frame get all their supplies from one good firm, and are careful to put them together right; and if all supply manufacturers made the Hoffman frame the same size and pattern, and the users nailed them up square, and turned the V edge the way you direct, there would not be much complaint about them. I will give you my experience.

I started about twelve years ago with Hoffman frames in Simplicity hives, with the top-bars flush with the top of the hive. I quickly changed the hives so as to give a bee-space at the top, and would not tolerate the other style. During this time I have bought and sold quite a number of bees and hives, with the exception of one hive which had loose hanging frames. They were all Hoffman, some locally made, but the most from regular supply dealers, with the V edge turned every way except the right one —some without the V edge, which, if I ever return to Hoffman frames again, will be the only kind I will use, as I believe it is the best. I have spent a lot of time nailing on the ends of the frames that split off, and turned the V edge to follow your directions until I got thoroughly tired of it and began to look around for some way out of the trouble. Last winter I planed off the Hoffman part of the frames of about 25 hives, and put a ⅝ screw on the end-bar on the same end that you turn the V edge. I made a gauge 1½ inches wide, to set the screws the proper width; then I sharpened the end of the top-bars to about ¼ inch square so as to reduce the propolizing surface to a minimum. I used these frames the past season, and am well pleased with them. The sharpening of the end-bars is a distinct advantage, as so little propolis is put on the ¼-inch square at the end of the frame that they were easily moved. I like the screws better than the staples or Hoffman end-bars. They are easily put the exact distance, are rigid, have a bigger point of contact than staples, and can not be jammed further into the frames either way. These screws may be objected to by some who extract, but I can not see how anybody can touch them with the extracting-knife with ordinary care; indeed, hard-wood screws or plugs could be used instead of metal.

DISTANCE THAT BEES GENERALLY FLY.

Last spring while feeding my bees with a Miller feeder and thin syrup, placed about fifty yards from the hives, I noticed that bees were coming to the feed from the bush. I took the feeder and followed them up, covering the feeder up and moving as far as I could follow the line and then open it for the bees to locate it and get another start, thus moving the feeder about 100 yards, and waiting until a great many bees, both from my hives and from the bush, came to the feed. I noticed that, when I got something over half a mile from my place, my bees were getting scarcer, and the bees from the bush were more plentiful; and as I neared the bee-tree, which was about one mile from my place by the section lines, very few bees from my colonies came to the feed, while those in the tree appeared in swarms. I took the feeder and went back toward my place in the same manner I came; and the nearer I got home I had more of my bees and less of those from the tree, until nearly all were from my colonies, as at the start; and I noticed that, about midway of the mile, the bees appeared in about equal numbers from each place. Then I went back to the tree, with the result as first stated.

My bees are nearly all Italians, with stock from Alley, Moore, and your five-dollar breeder. Those in the bush are hybrids, I suspect from my own colonies, as I have the only Italians in my neighborhood. What will those who claim that bees will fly five miles to gather surplus say about this? I have my doubts about bees flying above a mile to any extent.

BEE-PARALYSIS—HOW I GOT RID OF IT.

About five years ago I imported bee-paralysis with a queen from Texas, although the queen-breeder denied that he had it in his yard. I had never seen a case of it until I got the queen. It might have been carried by the escorts in the cage, and I believe the disease is as contagious, or is tramsmitted as readily, as any other bee-disease. However, the colony I introduced the queen into had it badly, and the second winter it starved out. I burned the hive and melted the combs up. I noticed, however, that summer, that three colonies on either side of the one that first had it were affected, so I shut them up one evening with a wire screen, and moved them about 200 yards away, leaving them shut up about three days; then I took the screens off and left them to shift for themselves. They still had the paralysis. About a week after, I had a prime swarm. The same evening I killed the queens and brushed the affected bees on new frames with starters and new hives, disposing of the old hives and combs as I did in the first place. The next evening I opened the colony that had swarmed and gave a frame with a queen-cell to each of the brushed colonies. In due time the queens hatched, and the colonies built up; and I have never seen a paralyzed bee from that time to the present. In my "locality" I either cured it or scared it off by this treatment.

New Westminster, B. C.

[There will be danger, I should suppose, that the wood screws, if they entered into the edge of the end-bar, would be liable to split the wood. Why would it not be better to put those screws into the sides of the top-bar?

One objection I see to such screws is that the peculiar shape of the head is such as to act as a sort of hook, while the staple with its rounding head will slip past the top-bar on the next frame. Perhaps the round-headed wood screw might, to a certain extent, overcome the objection.

The screw would certainly have an advantage over a nail in that its depth in the wood could be exactly regulated at any time; and, no matter what the side pressure is in moving the frames back and forth, there will be no danger of crushing the screw deeper into the wood, thus destroying the exact spacing.

I think it is generally conceded now that bees rarely fly beyond a mile and a half in quest of stores; but that they may fly five or even seven miles has been proven beyond any doubt. Bees will sometimes fly from an island to the main land and *vice versa*, going a distance of five or even seven miles over water. Perhaps two-thirds of the bees would confine their range to half a mile.

Bee paralysis can be cured in the way you describe; but from reports we have had from others I should conclude that the same treatment generally applied would result in a failure. I would advise destroying the old queen and sprinkling all the combs, except those containing brood, and all the bees, with powdered sulphur. The brood may be given to healthy colonies, provided all the bees are shaken or brushed off. Of course, the old queen should be replaced by a young healthy one.—ED.]

MORE CONCERNING QUALITY OR QUANTITY OF HONEY.

Improve the Quality Before Advertising it.

BY GRANT STANLEY.

The article of Mr. R. A. Burnett, in May 15th issue of *American Bee Journal*, relative to the marketing of unripe honey, is not only one of extreme importance to all bee-keepers, but one that brings out the fact that many bee-keepers in their greed for gain have overlooked the matter of quality entirely. The article, coming as it does from one having a large experience in the handling of honey, should certainly arouse the bee-keepers of this country to more thought in this direction. It has been my opinion for some time that this has been to blame for the trouble that many bee-keepers have had in disposing of their product. There has been entirely too much effort put forth in the matter of securing a few extra pounds of honey; and entirely too little in improving the quality of that which is secured.

We seem to be living in a fast age—an age in which one man is doing his utmost to outdo another; and where individuals are unable to accomplish this end soon enough, trusts of every description have sprung up to hasten the matter. There is too much quantity and not enough quality. But remember that only when bee-keepers can warrant the quality of their product to be even above suspicion, then, and no sooner, will honey meet with the demand it merits.

Inferior honey, like inferior goods of any description, is only the result of careless methods employed in its production. When we see a good article of any kind we have just reason to believe it is the result of no small thought and intelligence. Good articles and careless methods never did go together and never will. The man who endeavors to produce things simply to sell can not expect to cope with the man who does his utmost to cater to the wants of the people. Articles of good quality and neat appearance must sell; there is no holding it back, for the people demand it, and are willing to pay for it, but they will not pay their money for an inferior article if they know it. There has been considerable said about teaching the public to use honey; but permit me to say that we shall never be able to teach the public to use inferior honey. Before people will risk their money on an article of doubtful nature they will purchase some of the well-advertised syrups of which there is scarcely an end.

It has been said that "a good article is half sold while a poor one begs a market," and this surely applies as well to the production of honey as to any other business. I fail to see why some bee-keepers will exhaust every effort, yea, even lie awake nights pondering how they may be able to secure a few extra pounds of honey, when, by turning their attention to the matter of quality, while they might not secure quite as many pounds, could invariably secure more money per pound, so that in the end they not only realize as much, but at the same time create a greater demand for their product.

If bee-keepers will turn their attention to the matter of quality I will venture the prediction that the sales of honey will not only be doubled over what they now are, but that the available supply of honey will control the price, the same as is now done with wheat, sugar, and other commodities. If honey is ever to become a commercial product this is the only way to do it.

It sounds like idle tales to say that many people do not know or have never heard about honey when it has been a great article during all ages, as shown by the frequent references to it in the Bible. Furthermore, it is used in medicines, candy, and pastries. The only thing remaining for the bee-keeper to do is to awaken to the matter of quality, and then in connection with a little advertising (by the way, it is not good to advertise it until we can guarantee the quality to be the highest), make honey a staple article of the world.

Nisbet, Penn.

[We are glad to have this particular phase of this question emphasized, and shall be pleased to hear from others of our subscribers who are willing to co-operate in bringing up the standard of our honey to A No. 1 and Fancy, rather than to reduce the quality in order to get quantity. All dark, ill-flavored, or otherwise inferior honey should be sold to manufacturers—that is, the makers of pastry goods. It is usually the dark and ill-flavored honeys that cause the cry of "adulteration" from consumers. Then they are liable not to buy any thing in the way of honey.—ED.]

HOW "WE" INTRODUCED A QUEEN.

A Laughable and Interesting Experience; a "Swell Affair."

BY MRS. W. M. BURKE.

I am wondering if all beginners have the gay time we have had in trying to introduce a queen to a hybrid colony. By *we* I mean my husband and myself; and here let me say 'tis the same old case as "me and Betsey killed a bar," I playing the part of *me* ever since about a dozen bees got under my veil in helping hunt for queen-cells; so he has had the "work" to do while I stand off a safe distance and cheer him up. But I'm ahead of my "tale of woe."

We sent away for a five-banded Italian queen, thinking how we would love some little yellow bees, such as we saw at Dr. Miller's in East St. Louis, Ill., in 1904. Well, after nine or ten days of anxious waiting we one noon received her "royal highness." She was a queer amber-yellow color, and, as my husband remarked, "no great shucks to look at."

The directions we had read and re-read for introducing queens said, "Make your colony queenless;" "be *sure* your colony is queenless," etc., so we made *sure* by veiling ourselves and sallying forth and picking old Mrs. Queen and a small family of slaves out, and putting them in a box with a piece of screen over one side and a big slice of comb honey in one end. Then we patiently(?) waited two days, with the new queen in her cage in the cupboard, then we followed to a dot the directions that came with her, except, as Mr. Root preferred leaving the cardboard over the candy-hole, we left it there instead of taking it off as directed.

We laid the cage, wire side down, over the top of the brood-frames and shut up the hive. We left it five days, as directed, although it was a great strain on the nerves, and at the end of that time our curiosity was at the bursting-point. We hustled into veils, gloves, jackets, etc., and rushed out to the hive about 9 o'clock one morning. My faithful "pardner" cautiously lifted the hive-cover, and I stealthily lifted out the cage, and, lo! our queen was still therein, and not more than three or four bees paying any attention to her, and not even the pasteboard over the candy-hole was nibbled a bit. Such hateful bees! I felt that I despised them. I commanded my husband to put the cage back and come away, which he did somewhat sulkily, for, be it known, he has a great fondness for poking around in and out of a hive (not shared by me).

We retired, and meditated over the contrariness of bees, and finally my husband said, "Let's take out our new queen and see if the bees have started queen-cells."

I hooted the idea, with this queen practically in the hive, but consented, and we removed the "Dago," as we called our new queen, and waded in. We found and cut out one queen-cell, unsealed, and then the bees got so wrathy we retired to give them time to cool off. After an hour or so we went at them again, and cut out five more queen-cells. One was sealed over. That did disgust us, and the bees seemed to go crazy, and a dozen, more or less, got up under my veil; and, by the way I moved and felt, I am convinced bee-stings *will* cure rheumatism, old age, or any old thing. I haven't moved so lively, nor, I may say, so gracefully, in all my life before—went over pea-fences, potatoes, strawberry-beds, and raspberry-vines like a bird. They stung me in my hair, on my neck, chin, hands, wherever they could get a toe-grip, and wept because I wasn't larger. I nearly lifted my scalp in my haste to shed veil and hat. My "pardner" nobly stayed with them, and got every thing in ship shape before he left; but then, *he* wasn't being stung.

After cutting out the queen-cells we waited until night, and, putting some long wires around the queen-cage, we spread two brood-frames and lowered the cage down among the brood. This was the night of the sixth day since we started to "introduce" her. We waited two days more, and then attacked the fort again to see what had been done.

On drawing out the cage we found it covered with and as full of bees as it could stick; and, after brushing some off, *there* was the queen yet in the cage!

Is she a hoodoo? I almost believe so. I advised my long-suffering husband to pry off the screen and let the poor thing out, even if they ate her up. He did so, and she flew against the inside of the hive and hopped on a partly empty foundation and hid from our view. Only two or three bees took after her, and none acted as if they meant to hurt her. Can it be she is finally introduced? or is there more agony in store for her?

My husband said she looked larger and thicker and yellower. But isn't "introducing," as practiced by us, exciting work?

When I get my colony (we have engaged two swarms from a neighbor) I think I will buy a nice young three-banded Italian (if Mr. Root has any *warranted* to feed out of my hand, and her bees *never* bite, he's made a sale), pick out the old queen, wait half an hour, and then just open the hive and let my new queen run out of her cage into the hive. If they ball her I'll put them to soak in a tub of water; and if they let her alone, well and good. It is not so harrowing on the nerves.

My husband disapproves of my frivolous attitude regarding bee-keeping; but when one is such a favorite with them as I, I must have some fun to repay me for a stiff neck, worse than rheumatism, and a large aggressive jaw that causes my most intimate friends to look apprehensively at me, and the good man himself to keep a wary eye on me. My appearance is fierce with it, and, all together, I am a very *swell* affair.

I've written this yard or two of letter merely to ask if some kind bee-keeper won't tell me how old larvæ can be, and the bees yet create a queen from it. I'd like to know, for our warriors may yet have a queen of their own making up their sleeve. Nothing would surprise me in these bees. They even enthusiastically fly indoors for one nip more at me.

In three days more, if I am nerved up to it, I will hint to my wayward "pardner" that we take a still hunt for the Dago. I think I'll get more nibbles, but it's all in a lifetime.

Ladue, Mo., May 15, 1905.

[When younger larvæ are not available the bees may take any thing unsealed and try to make a queen of it.—ED.]

HOW TO KNOW FOUL BROOD.

BY E. R. ROOT.

A short time ago we received a pamphlet issued by the Irish Bee-keepers' Association, entitled "How to Know and How to Cure Foul Brood." There were two excellent half-tone plates in it that I have taken the liberty to reproduce and present to our readers. I was intending to make some extracts, but just now I am unable to lay my hands on it. However, Fig. 1 I take to represent a sample of healthy brood. The cappings are rounding, and the unsealed cells probably contain larvæ in various stages of growth, but which, owing to the darkness of the recess, did not show to the camera. HL appears to be two specimens that have been raised up to view, or they might be specimens of starved brood which will sometimes work its way near to the opening of the cell. DD possibly may show early stages of foul brood. Without seeing the comb from which it is taken it would be impossible for me to say. But the portion in the upper right-hand corner gives every appearance of being perfectly healthy.

Fig. 2 shows a specimen comb in an advanced stage of the disease. The cappings are flat or sunken, with ragged perforations. Sometimes there will be two openings in a cell; the cappings will not only be sunken, but have a greasy, filthy look near the opening.

While we are talking about foul brood, it may be well to state that I am receiving anywhere from two to three samples a week during the season of brood, for me to pass on as to whether it is chilled, heated, pickled, foul, or black brood. The majority of the specimens when received this spring were nothing but chilled brood that is harmless. The same may be said of scorched or heated brood. I never knew pickled brood to show a sunken capping, much less a small, ragged, greasy-looking perforation in it. I am never sure of my diagnosis of this disease until I keep it in an inclosed box in a damp place for a few days. At the end of that time it will begin to show a sort of mold or fungus. Pickled brood is not ropy nor stringy, neither is black brood, and the

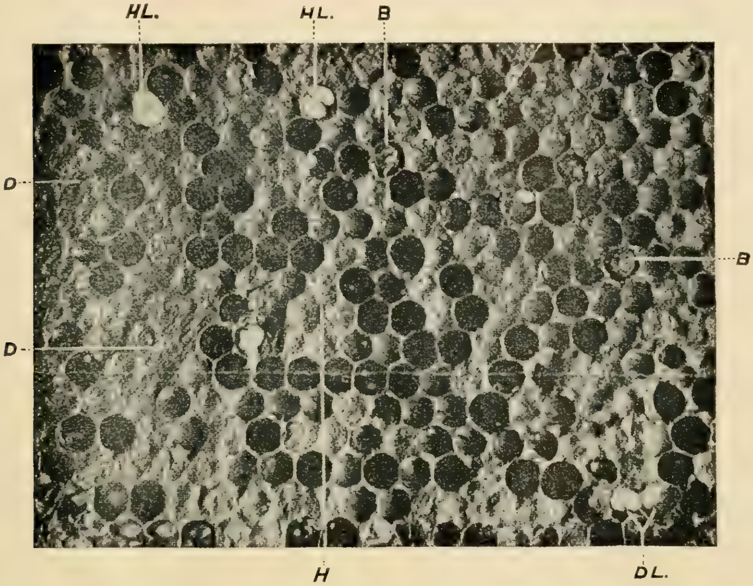


FIG. 1.

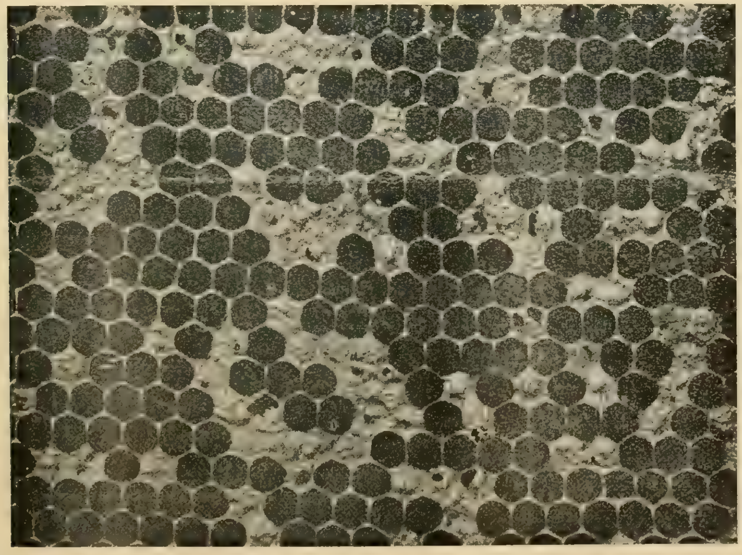


FIG. 2.

two look very much alike—so much so that, in some cases, I find it necessary to submit it to a bacteriologist for determination. Both black and pickled brood have a sort of sour smell, more particularly the former, as if it were a sort of ferment. Foul brood shows the most marked symptoms of any of the brood diseases. The cappings have an appearance, in the advanced stages, like that shown in Fig. 2. If a pinhead be dipped in the dead matter, and drawn slowly away, it will string out an inch or two from the cells. I have known it to stretch two or three inches, but rarely over one inch. The odor is very much like that from a cabinet-maker's glue-pot or a lot of dead bees. Indeed, the stench from dead bees is so nearly like that from foul brood that on several occasions I have hunted around until I found the source of the smell to be dead bees and not that from the dreaded disease. But not all dead bees will give off this stench. Dry ones will not, while those in a warm damp place will give off the sickening odor.

The color of the dead matter of foul brood varies all the way from a dark coffee color without milk in it to a light coffee color with milk in it. It may be dried like so much glue, or in a gluey stringy state *on one side* of the cell. It will not generally be found in the bottom of the cell, as many suppose. It looks very much like a cabinet-maker's glue, and strings out in much the same way when some object is dipped in it and drawn slowly away from it.

SWARMS OF BEES TAKING POSSESSION OF BUILDINGS.

How to Get them Out.

BY E. R. ROOT.

Every now and then I get a letter inquiring how to get bees out from between the clapboarding and plaster of a dwelling-house. Sometimes the bees locate between the two walls of public buildings. Nay, further, they even go so far as to domicil in church steeples. Some days ago Mr. M. E. Tribble, of Marshall, Mo., sent us a photo of a swarm that had entered a cornice and occupied the space between the rafters, the plastering, and the shingles of a stone church. The picture is here reproduced.

That the colony was an enormous one is shown by the two tubs of comb and honey. From the looks of the roof that had been torn away, the bees must have occupied some six feet of one section of rafter, and some two or three feet of the adjoining sections It was impossible for them to get into the stone wall and so they occupied the next best place—the space immediately under the shingles. Whether the trustees or board of directors of the church authorized some bee-keeper to go and tear away the roof, taking out the bees, or not, is not told; but in the absence of any specific statement it may be assumed that some local bee-keeper was engaged for such service. The

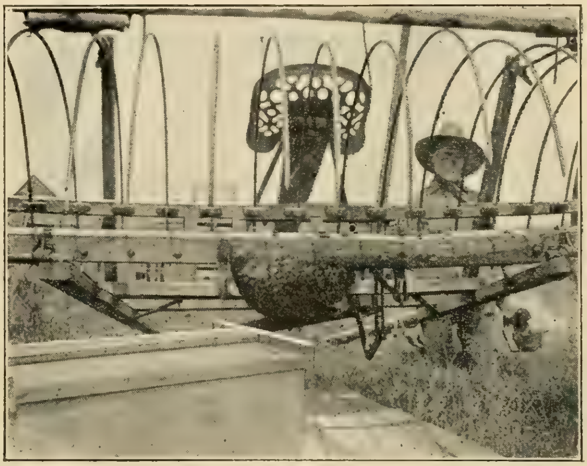
A SWARM OF BEES THAT TOOK POSSESSION OF A CHURCH.

job was evidently a bigger one than was anticipated, for it appears the roof had to be torn apart several feet each way; and two tubs of honey—that would indicate that the bees had had possession of the church for at least two years—possibly longer.

It is well known that a powerful colony that has all the room it requires will keep on storing honey in garrets or other places without the probability of swarming. It is apparent in the case before us that these bees had no desire to swarm out. No patent hive nor any fancy notions of man put any limit on their inclosure. Indeed, they were free to occupy, if they chose, thousands of feet of rafter space.

Why were they disturbed in their peaceful possession? Well, I can only guess at two reasons. One is that the attachments of the combs right next to the roof would, on a warm day, melt away, letting the honey crush on the lath and plaster. The result would be that the mellifluous sweetness would ooze out here and there, soiling the frescoing within, and every now and then stray bees would be hovering over the heads of the audience. Something would have to be done, and the services of some bee-man would have to be engaged. Perhaps he might have trapped them out with bee-escapes; but how about the honey, the thing that was causing the real trouble?

But I will now answer the question that has been put to me so many times, "How can we get the bees out from between the two walls of buildings, or in this case, we will say, from between the outer and inner lining of the roof, without mutilating the building? Two or three plans have been suggested. The most feasible one, in my opinion, is the use of Porter bee-escapes at the entrance or entrances leading to the space within the building. The bees will pass out readily but will be barred from going back, and in the course of a day or two there will be quite a swarm outside. Within a week or so there will be only a few bees to take care of the brood, and the queen will ease up on laying and some of the brood will die. As the bees hatch out and become of flying age they too will join the bees outside. But how are we going to take care of the bees as they come forth and are debarred from going back? A frame of unsealed brood placed in a hive close to the old entrance would hold the first bunch of bees that were trapped out. As the young bees fly out they will be drawn by the other cluster, and go into the hive outside and join the old original crowd. In the mean time the queen within the old inclosure is having fewer and fewer bees until they are all gone, and she herself has no more nurses to take care of the young brood from the eggs she has laid. The brood all dies and she herself soon follows suit. What happens next? When no more bees come out of the space in the building for a matter of two or three weeks or a month it may be surmised that the queen is dead, as also the brood. Now remove the bee escape or escapes; and if it be in the fall of the year the bees in the outer hive will rob out the honey that was stored inside of the building. They will do a thriving business for several days. As fast as they store it in the hive remove the filled combs and give them others. When they stop robbing it will be reasonable to suppose there will be nothing in the lining of the buildings but combs and some dead brood that will do no harm. In the fall take the colony entirely away or put it into winter quarters. In the case of the swarm on the church the hive could have been located right on the roof near the corner. It would be an odd place for a hive, especially if shaded by boards, as it would have to be in such a hot place, but this would be for only a short time and would save the expense of mutilating and repairing the building.



A SWARM OF BEES TAKES POSSESSION OF A HAY-RAKE.

This plan of removing a colony from within the walls of a building has been successfully accomplished in several instances, and could have been carried out in the case before us.

THE SWARM THAT TOOK POSSESSION OF A HAY-RAKE.

The other day there was an account in the papers of how a swarm of bees took possession of a train, compelling the engineer and fireman to vacate the locomotive while they themselves began to cluster in the cab. While I do not believe one-fourth of the stories about bees in the newspapers, yet such an incident is entirely within the range of possibilities.

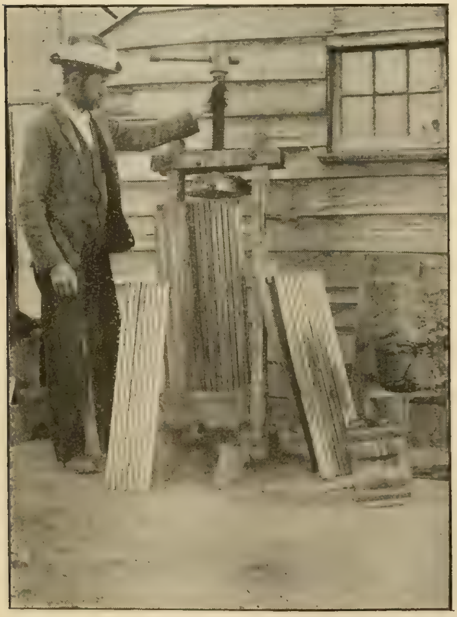
Sometimes a swarm will be bent on clustering on a human being. It is indeed a fact that they will sometimes seek the most unusual places, although as a rule they prefer a leafy bough with plenty of convenient points of attachment, for comparatively few bees must hold the entire weight of the cluster. Occasionally a swarm will hang under the eaves of a building, and if left undisturbed may draw out a set of combs; or, if there be a convenient hole, crawl up and occupy a space under the roof as in the first picture. At other times they will cluster on agricultural machinery. Mr. J. A. Gillette, of Burchinal, Ia., sends us a photo of this kind, but the old farmer was, apparently, a bee-keeper too, for he has in his hands, as will be seen, a Clark bee-smoker. A further evidence of this fact is a modern hive with its entrance located immediately beneath the cluster. In front of the entrance is what appears to be a board on which, as the bees are dumped, they can conveniently run into the hive. We are not told what happened, but I surmise that the hay-rake at the point directly above the swarm was given a quick hard jar, and the job was done.

A CAPPINGS AND WAX PRESS

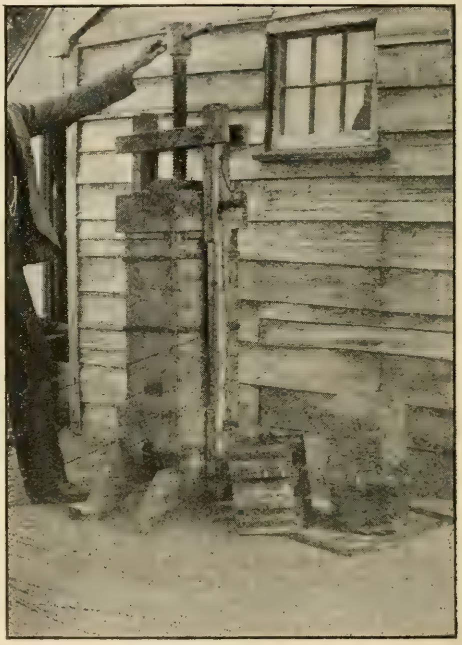
Out of an Old Cheese-press.

BY E. R. ROOT.

Some time ago Mr. T. Bolton, of Dunkeld, Australia, sent us two photos illustrating a device he was using. It is nothing more nor less than an old cheese-press adapted to squeeze cappings from extractings dry. One illustration shows the machine dissected, with the perpendicular grooved boards, so that the honey, as it is squeezed out, may run down into the pan beneath, where it can be drawn off. The other illustration shows the machine assembled, ready to squeeze.



CAPPINGS-PRESS OPEN.



CAPPINGS-PRESS CLOSED.

These old cheese-presses can be bought very cheaply in some localities, and, when obtainable, serve excellently both for cappings and hot slumgum. The latter must be melted in a kettle of water conveniently near, and then dumped into a burlap sack. Pressure is quickly applied, causing the wax to flow out from all points.

The illustration herewith shown will explain how an old press can be adapted for either a cappings-squeezer or a regulation wax-press.

HIVE-TOOLS.

Their Use and Abuse.

BY LESLIE BURR.

On page 312, March 15, are cuts of the H. S. Ferry hive-opener and bee-brush. Those things are along the line of many other devices that are continually being advocated by various men who know very little about practical bee-keeping. I may here mention the Hochstein machine for holding frames while uncapping, and the man who ran his extractor with a treadle while he uncapped, also using two knives to uncap with, keeping one in water, or rubbing it over a bacon skin.

There is no better all-round hive-tool (and I have used every thing from a machete to a butcher-knife) than the broad-bladed paint-scraper or putty-knife — a knife with a blade at least three inches across, and strong enough to break loose any cover. It is all right for digging out frames, scraping covers, and handling combs that have been built where they should not have been; in fact, it is the *only* hive-tool; and when you are through working with it, put it in your hip pocket.

As to bee-brushes, one is seldom needed unless handling frames of new honey or a frame with a queen-cell. Take the frame with the thumbs across the ends of the top-bar, and the knuckles of the fingers on the end pieces; then give the frame two or three sharp shakes (shake with your arms, not your back). If you have to use a brush, there is nothing better than the well-known Coggshall brush. With it you can *sweep* the bees off the combs — not just chase them around and spoil their good temper as this Ferry double-acting back-acting machine will do.

In uncapping, all that is necessary is a strip running across the uncapping-tank in front of you, about four inches wide. Have it hang in so that it can be easily taken out at odd moments when you wish to work up the uncappings. As to having to put a knife into water to uncap, there may be times and places when it is *necessary* to do so, but I have never seen it. I have seen people who claimed it had to be done, but I found no trouble in uncapping the same combs. One such occasion was in the Province of Santiago. I uncapped the same combs as fast as an eight-frame Cowan extractor could handle them, and put the full frames into the machine as the operator took out the empty ones, and he was as good a man as I ever had run an extractor for me. The fastest uncapping is not done with a sawing motion. Strike a downward blow with the knife at an angle, taking off a strip of cappings not over two inches wide; then when the blade strikes the board over the uncapping-tank (if done correctly that edge of the knife which comes in contact with the board is never needed to cut with) push the knife point foremost across the end of the frame, and an upward sweep holding the knife at an angle to get a draw cut, and the side is uncapped.

Guines, Cuba.

[Conditions and methods of management are so different that what will answer for one would hardly do for others. The putty-knife would be ill suited for prying apart Hoffman frames, for the reason that the blade is too wide. It is all right for prying off hive-covers—nothing better.

In a dry climate, where honey is very thick, hot water greatly assists the honey-knife. Yet in a climate like yours it is not needed.—ED.]

SPACING FRAMES BY MEANS OF MARKS ON THE HIVES.

Making one's own Hives.

BY J. A. CRANE.

I have read with much interest the discussion in regard to the Hoffman frame, and it seems to me to narrow down to about this: For bee-keepers who move their bees, or who make colonies for sale, it is the best thing out; but for the man who keeps his bees at home, or is near outyards, why be bothered with any thing so cumbrous as a frame built of propolis half way down the end-bars, and that you can't get apart without breaking one out of three every time you open a hive in cool weather?

I recollect the editor saying one or two years ago, that he never found more than one apiary having loose frames that were properly spaced. Now, we all know that, without some guide, it is a hard job to space a set of frames just right; but we also know that it is no more work to space a set of frames right, if we have a mark to set them by, than it is to pack a set of Hoffmans covered with hard gum.

The simplest way of using or spacing Simplicity frames that I have ever heard of is my own invention, unless it is so old as to have been discovered before my time. It is like this: Take a common carpenter's marking-gauge, and set it so as to scratch the center of the top-bar. Scratch an inch or more from each end, then mark the scratch with a lead-pencil *hard*, so that it will show deep and black, then mark the top edge of both ends of the hive *crosswise* also with, first, a scratch-awl, then with the lead-pencil, so that the marks on top of the frames will match those on the hive; then it is easy to space correctly without the use of wood, staples, or nails to be in the way or catching in the next comb.

For marking the hive-ends, take a strip of wood the length of the end of the hive, two inches wide, and saw in one inch where each frame-center is to be; then with a jack-knife cut a notch on one side of each slit and lay this on the hive-end and mark by the square edges. It is but a short job to mark a lot of hives, and, when done, it lasts. If the bees pack propolis into the marks it does no harm, for they can be seen better than ever; and if any one has hives and frames once marked it soon becomes a fixed habit to set the frames in so the marks jibe, and there are no more bulged or thinned combs.

There is a saying, "Don't monkey with a buzz-saw." The advice is good for some; for others, not. Hutchinson's advice to get a saw and make your own hives, etc., applies equally. Now, any one who knows nothing about machinery and tools had better leave the buzz-saw alone and buy his supplies ready made. But, on the other hand, any bee-keeper, farmer, or laborer, not a mechanic by trade, who is capable of using a buzz-saw, is certainly capable of making one himself, as good as or better than he could buy, and for about one-third cash outlay.

Marion, N. Y., Feb. 25.

[Your plan of marking the distances off in the hive will work; but in the case of the old-style Langstroth frame, absolute accuracy in spacing is not necessary. One can ordinarily do a fairly good job with his fingers after he has had a little experience. Years ago, when I used to handle these frames, the space between the ends of my fingers as I moved each frame into place would make the distance approximately right.—ED.]

LOOKING FOR QUEEN-CELLS WITHOUT OPENING THE HIVE.

A Simple Clamp for Securely Holding the Supers in Place so that the Hive may be Tipped Back and the Condition of the Brood-nest Seen at a Glance; a Boon for Comb-honey Producers.

BY F. H. CYRENIUS.

Advanced methods of comb-honey production require an examination for queen-cells once in seven or eight days during the honey-flow or swarming season, or the practice of natural swarming. To remove the supers and take out the combs of a hive crowded with bees (as they always are at this time) is a tedious job compared with simply tipping the hive back, if the supers were secured so they would not slide off, saying nothing of killing more or less bees or perhaps a choice queen.

It is an indisputable fact that bees will store more honey over a hive full of brood so long as they do not attempt to swarm than by any other plan or condition. This being the case, why disturb or change them so long as they do not make preparations to swarm?

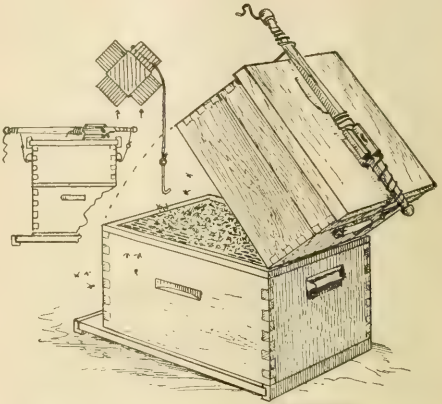
With this simple device 100 or more colonies may be examined per hour; and if this examination be made every seven or eight days there need be no fear from swarming.

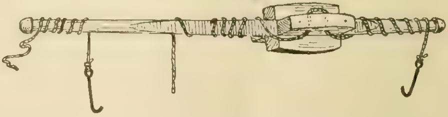
The proper time to do the shook-swarming act is after queen-cells are started; and I believe no plan is superior to that described in April 1st GLEANINGS by Mr. Sibbald.

As ventilation very much retards swarming, I should recommend the Pettit tapered pieces under the hives at the approach of hot weather.

The clamp above referred to is made of straight-grain hard wood, 1¼ inches square, tapered at one end, and four pieces or blocks nailed on all four sides, which gives the proper fulcrum with eight bearings so it can be adjusted to take up all the slack cord. On the tapered end is attached a cord with hook to grapple in the back hand-hole of the hive after which the lever is turned to take up all the slack cord.

Now place the other (or detached) hook in front hand-hole. Now bear down on lever until the proper pressure to hold the supers securely is attained, and wind the cord around the lever a sufficient number of times to hold it securely as the hive is tipped up. Be sure the cords are wound in opposite directions around the lever so that it will not turn as it would if both cords pulled on the same side. Now grasp the lever around where the cord was just wound, which will prevent it from slipping, and also furnish a very convenient handle for tipping the hive, as shown in the photo.



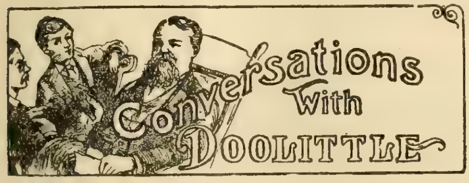


If the hive-cover is strong enough to withstand the strain it will not be necessary to remove it. If the cover is not strong enough it must be removed and a piece of board laid across the super to receive the strain. With a little practice any one will soon become efficient in its use.

Blow a little smoke in the entrance before adjusting, then a little more, and tip the hive back and smoke the bees up out of the way.

Oswego, N. Y.

[For the benefit of beginners it may be well to state that Mr. Cyrenius omits saying that the success of his plan depends on the fact that the swarming-cells will be built along the bottom-bars of the brood-nest tipped up as shown in the illustration. In some cases there might be no swarming-cells at the bottom of the frames where there will be several of them located in the middle portions of them. But, generally speaking, the swarming-cells will be along the bottom-bars, and the plan would give the desired information in most cases. But even then the plan contemplates (see illustration) the use of a double brood-chamber, as I understand it — that is, a two-story hive with a super on top. Mr. Cyrenius apparently assumes this kind of combination, taking it for granted that the veterans will understand him, as no doubt they will. But in the production of comb honey the great majority of bee-keepers work with *only one* brood-nest. I suppose there is nothing to interfere with lifting the one brood-nest with its supers off from the bottom-board; but in such cases I should expect, owing to the chilling drafts from the entrance, the cells would often be higher up.—ED.]



SWARMS WITH VIRGIN QUEEN WHEN SHE GOES OUT TO MATE.

"Good morning, Mr. Doolittle. I have come all the way from California to have a little talk with you in regard to something which I think will be interesting to us both."

"Very good, Mr. Muth-Rasmussen. I am glad to see you, for I know you are one of our oldest bee-keepers, and one who has had much experience with the honey-bee. What is to be this interesting talk?"

"First I wish to speak of something which very often happens with us in California; and to make it plain I will put it under the head of a supposition."

"That is right. By making matters plain we shall understand each other better, and know whereof we speak."

"Now, suppose the following case: A colony of bees loses its laying queen by her dying from old age or some other cause. The bees start queen-cells on her brood; but when the young queens emerge there is no more unsealed brood from which a queen can be reared; consequently, when the virgin queen flies out to mate, the bees will swarm out with her and will settle on a tree or bush, like a normal swarm. One of the questions I should like to ask is this: Does the young queen after a successful mating, return to the old hive, or to the swarm hanging on the tree?"

"But is the case a supposable one?"

"I had thought so. Why not?"

"Perhaps it will be well for us to look into the matter of how swarming is conducted. Would a swarm issuing under your supposed case be any different from any after-swarm, except that more bees would go out with this virgin queen?"

"Perhaps not, only that there would be more time for the brood to mature than there would be where the old queen goes with the prime swarm instead of her being lost by death."

"Yes, you are quite right there; for with the loss of the old queen it would be from ten to thirteen days before the first young queen would emerge, while, when the queen goes with the prime swarm, the young queen generally emerges seven days afterward. But as all young queens are from four to eight days old before they go out to seek the drone, all brood must be sealed under any and all cases where man does not interfere, before any virgin queen would leave the hive on her mating-tour."

"I guess that is so."

"Certainly. All authorities agree on this. All swarms having virgin queens must necessarily issue *only* after *all* brood is sealed, unless, perchance, the prime swarm has been kept back by foul weather till near the time of the emerging of the young queen, and, so far as my knowledge extends, no virgin queen, while her colony was in a state of nature, *ever* flew from her home to meet the drone until after *all* brood was sealed."

"I think we agree on these points; and, if so, why was not my supposable case good?"

"Because swarms do not go with virgin queens when they go out to mate. Let us study into the swarming matter a little further and see if we still further agree. You say in your supposition that, after the death of the queen, the bees start queen-cells. Now, I never (certainly) knew of any after-swarm issuing, or of a *virgin* queen going with a swarm; or any swarm going with a virgin queen, without a rival queen being left in the hive from which such swarm came—the same generally being confined in one of those *queen-cells* you tell me was started. This is nature's plan for the preservation of the old home or hive, and is one which has prevailed for thousands of years. I said, 'certainly' knew, because, years ago, I supposed I had cases where the bees went out with the queen when she went on her wedding-flight; but later experience has convinced me that there was a rival queen in the hive from which these swarms came. If this is correct, then your case is not a supposable one."

"The only answer I can give is this: Under the supposable case, and under such circumstances, the bees (though not the whole colony) invariably swarm out with the virgin queen, in this locality. I have had quite a number of such cases this year."

"Well, this beats me, and it is the first time I ever heard of such a thing. I know that *locality* plays a very important part in bee-keeping, but I did not suppose that it could change the laws governing the swarming of bees; and as you and I are among the oldest of the bee-keepers now living, if you are agreed we will ask the readers of GLEANINGS to tell us how they find this matter in their locality."

"I am agreed, and should like to hear from them."

"And that they may know how Doolittle views this matter I should like to state that, so far as my experience goes, a swarm goes out with a virgin queen only when there are rival queens left in the hive in the shape of other virgin queens in queen-cells, and when all but the last virgin have gone out with swarms, or been disposed of by the bees or by the queen that is at liberty in the hive; then, a few days later, this remaining queen goes out to meet the drone alone, *with none of her bees accompanying her*, is fertilized, and soon becomes mother of the colony."

"And Muth-Rasmussen wishes to say that, under the circumstances he has given, a part of the bees invariably swarm out with the virgin queen when she goes out to mate, leaving nothing from which the bees might rear another in case this virgin fails to return. And I hope to hear from many on this point, especially from those in California. Now, as we have left it to the readers of GLEANINGS to tell us their experience in this matter, suppose you tell me whether you think the queen, on her return from a successful mating, would go to the old hive or to the swarm hanging on the limb."

"In cases of this kind I should expect that the virgin queen would alight with the swarm, and stay with the swarm until the same was hived, or found a home in some hollow tree or cave, when, or after which, the queen would go out to meet the drone, from the fact that I never knew a virgin to mate until her colony was established in a home of some kind. I have opened hundreds of after-swarms within one to three days after they were hived, to see about how they were building comb, and I never saw eggs in any cells earlier than two and a half to three days from hiving, while it was more often four to six days."

"Thank you for your opinion on this point. And now will you give your opinion still further? If the young queen, after having met the drone, returns to the place where the swarm had settled, but the swarm, in the meantime, while the queen was in the air, has been brought back to the old hive, will the young queen come back to the old hive, or will she remain at the settling-place, lost like a young bee that does not know its own home?"

"Should such a thing happen as you are supposing, the queen would return first to where the swarm had settled, and, not finding it, she would return to the old hive, as she marked the location of her old home when she went from it, the same as all the bees with the swarm do. All bee-keepers who practice clipping queens know that, if any thing happens to their queen after they have clustered, they will go back to the hive from which they came."

"Thank you again. And now just one more question. If the young queen, after mating, returns to the swarm hanging on the tree, and the swarm is not hived by the owner, will the swarm return to the old hive of its own account, or will it finally leave in search of a new home?"

"It would leave in search of a new home; for, so far as my experience goes, all swarms having their queen in perfect order with them, look up a new home, and never return to their old home. They start out from their parental roof with the intention of establishing a new home, and they always do this unless thwarted in their purpose by the loss of their queen."

"These are interesting questions, and I do not remember seeing any thing exactly to the point, either in bee books or papers."

"Pardon me for thinking that the reason you have not so seen is because others have not found out that bees swarm with the last and only young queen they have, when she goes out to meet the drone, thus purposely leaving the old home hopelessly queenless. This is not in accord with nature's ways."

Heads of Grain from Different Fields

WHAT BECAME OF THE QUEEN'S WINGS?

At dinner Mrs. Janes informed me a swarm of bees lit in the maple-tree. She had found and caged the queen (clipped), at the time the swarm went out. When she showed me the hive they had gone from I remarked at once that my record showed *no clipped queen* in that hive, and at once prompted me to examine the queen closely. I saw she hadn't a sign of any wings whatever — only frayed stubs at the shoulders where should have been wings. That explained why she was not flying, though unclipped by me. So we fixed hives as wanted, fully expecting in due time the swarm to come back. In a few minutes we saw them begin to break up; but instead of coming back, as I was expecting them to do, they arose and flew away and did not come back at all. A dozen queen-cells were left in the hive, about as old as usual, after the swarm left, so it is evident there was another queen besides the one we found without wings, and she evidently had at one time had wings, or could not have gone out to mate and perpetuate a colony. The only way I see is that the bees had raised another queen and let both remain in the hive, which is rather hard to explain and allow time enough for the last queen to get ready to swarm. What became of this queen's wings, any way? My first thought before examining cells was that, as she couldn't fly, they had waited till a virgin queen hatched and went with them; but the cells left contradict this, as they were not capped over.

W. M. JANES.

Paducah, Ky.

[Friend J., the old queen you caged had good wings once. I can not tell just how she has lost them, but queens often have their wings torn off this way after being balled by angry bees. I had one very valuable queen for several years that looked more like a big black ant than she did a queen. When she got old she was allowed to stay in the hive with her royal daughter. This is not very unusual. The young queen led out the swarm, and this aged wingless queen started to go along with the "young folks," when you caught and caged her. When bees hang in a cluster in that way there is pretty sure to be a queen of some sort among them. The best way is to hive them just as if you had not found one queen already and caged her. The brood in the hive might have been the work of the laying queen that led off the swarm; or both queens may have contributed to the brood. If you give the wingless queen some bees you can soon tell whether she is of any value.—A. I. R.]

SHOULD COMB HONEY BE LEFT ON THE HIVES TILL THE END OF THE SEASON?

Reading Mr. Dan White's article in regard to letting the honey stay in the hive until it is well ripe, would you leave all the supers for section honey over the colonies until the season is practically over, or does it make *less* difference with section honey than with extracted? that is, should the full supers still be left on the hives when empty ones are put under? Will the quality be better by letting them stay on?

Fredericktown, Mo. JAS. BACHLER.

[Mr. Dan White was speaking particularly of *extracted* honey. In the production of *comb* honey one would have to take it off as soon as it was sealed, to avoid travel-stain; while if on the hive a long time it will improve in flavor, yet it will deteriorate in outward appearance. It is this factor, very largely, that decides the sale of all comb honey. Of two sections, clover or basswood, one that has been on the hive a long time, and one just long enough to be sealed, the latter will outsell the other because of its cleanness and freshness. The long-time-on-the-hive section might look like last year's honey or old goods.—ED.]

COMMENTS ON THE ALEXANDER ARTICLE ON INCREASE.

I commenced to read GLEANINGS in 1888, and have read a good many articles on bees in that time; and if a better or more practical article than "How Shall we Make Our Increase?" by E. W. Alexander, was ever printed in it, I have failed to see it or comprehend any thing its equal. The loss of brood, a practical bee-keeper would see at once, would be a big item making toward the betterment of the colony to be. I can readily see that one must have strong colonies for this manipulation. The Sibbald plan is somewhat after Dr. Miller's plan of managing swarming colonies. He printed it several years ago in GLEANINGS — in fact, it is in his "Year Among the Bees."

He calls it his "put-ups," as the old colony is placed above the swarm; and then later the old colony is put back with the swarm. Instead of leaving a queen-cell with the bees in the new hive he gave them a frame of choice brood to raise queen-cells. It's a good plan too. I have tried it many times.

By the way, in manipulating swarming colonies or those you have shaken, the best place for the colony is on top of the new hive. I mean on top of the cover of the new hive. Have them as two separate colonies, with their two entrances. Flying bees are not so apt to find the old hive if it's on top as they would if it is at the side.

But there is the loss of brood in this case. I have been thinking that, perhaps, it would be profitable, when we take the old hive from the top of the new one, by Alexander's plan, containing the queen, if the bees could be shaken from combs of brood into a new hive containing a queen, as brood is now all capped in the queenless part; consequently there could be no loss in brood, thus giving us a big force to go into the sections. May be by doing this it would induce them to swarm later. GEO. SHIBER.

Randolph, N. Y.

CAPPED-OVER CELLS CONTAINING NO HONEY; WHAT DOES IT MEAN?

In extracting honey the other day I found in a few hives which were well filled with honey many cells sealed up with no honey in them at all; in some, very little. I wondered what the reason was. FRED WULF.

Columbia, Cal.

[Friend W., I have noticed the above a few times, but it is not a very frequent occurrence. The only explanation I can give is that some of the bees made a blunder. This seems unreasonable, especially as every operation in the hive during the working season is carried on with such precision and economy of labor; and if anybody else can give a better explanation I should be glad to hear it. Perhaps some of the younger bees that hadn't learned how made the blunder; or it may be some of the veterans, so old as to be childish, were so stupid as to go to work and seal up the cells in the regular way without noticing they had not been filled. I do not like this explanation, because I have often watched the process of depositing the honey in an observatory hive; and it seemed as if they kept adding honey from time to time as the cap was contracted, and the opening made smaller and smaller. When the last touch, or last bit of wax, was put on to seal the cell over tight, the glittering ripened nectar seemed to come clear up and touch the cap at every point. This very peculiarity that we are now considering is one of the things that is going to make it impossible for man's inventive genius to cap comb honey by artificial means.—A. I. R.]

UNCAPPING-CAN A GOOD ONE.

I should like to have bee-keepers who do not care to purchase a regular uncapping-can know how complete the tub used for that purpose is, spoken of on page 759 last year by J. W. Woodhouse. I have made one, and am using it this season. It is a good thing. S. B. HUSSEY.

Rancocas, N. J.

OUR HOMES,

BY A. I. ROOT.

Ho, every one that thirsteth, come ye to the waters, and he that hath no money; come * * * —ISAIAH 55:1.

You will notice, friends, I have placed the same text above my talk to-day that I used in the last issue, and I want to go back with you to the Oberlin waterworks plant. When I first reached the grounds my eye caught a glimpse of a large plant in full bloom that I had never seen before; but other things took my attention so that I partly forgot about it until just before leaving; then I said:

"Friend Gerrish, what was that beautiful plant of which I caught a glimpse just as we came on to the ground?"

"Oh, yes! to be sure. You must come and see my flowers."

Sure enough, it *was* something I had never seen, and I was a little surprised, too, to find that, in all my visits to greenhouses, experiment stations, public parks, etc., this new revelation of beauty had never met my eye before. The plant was three or four feet high, and radiant with great blossoms almost the size of a dinner-plate. I raised my hands, and uttered an exclamation of surprise. Yes, it was one of my "happy surprises," and a big one too. First, there was the outside row of rose-colored petals. Just inside of this was a zone of cream-colored petals, and inside of that another zone or row of a different color still, flecked with crimson spots. Inside of this, and filling the center, was a great mass of corolla and stamens; and the Italian bees from the apiary before mentioned were tumbling over each other to get their noses (or perhaps we should say antennæ) into the center of that great blossom. There were, perhaps, a dozen blossoms on the plant, and I do believe that it was the handsomest floral production I ever saw, not excepting any I ever saw in Cuba or Florida. What do you suppose it was? After my two friends had laughed at my enthusiasm, Mr. Gerrish replied that it was a tree peony, bought of Storrs & Harrison, Painesville, Ohio. He said it stood outdoors unprotected, and had borne blossoms several summers. There were three or four other tree peonies, but none of them so gorgeous and startling in their beauty as this one—at least to my eye. Then I remembered that I had heard strange talk about the old-fashioned peonies of our grandmothers having been lately brought forward and developed into new and gorgeous creations at the hands of experts in that line; and then I remembered again that on my table in my office at home there was a pretty good-sized book or pamphlet on the cultivation of the peony. I have been intending to write it up, but was not quite decided as to whether the readers of GLEANINGS would care to know about a book devoted entirely to peonies. By the way, the author of this manual on the peony is a queer sort of brother. Let me make some extracts from two letters I received from him:

> *My dear Bro. Root:*—I have been in the ministry 47 years. My nerves were worn threadbare. The wolf was at the door, so I started a nursery. God has blessed me in it. I have your book on tomato culture; glad you put Christ in it. I am issuing two books—see circulars I send you. One book is on the peony. The other will be out in a few days. I now write for papers having an issue of over 300,000, preaching the evangel of beauty.
>
> York, Neb., Jan. 23. C. S. HARRISON.

Here is another letter that came later:

> *Bro. Root:*—At 66 my health failed; then with God's help I pulled out of my head and hands one of the finest nurseries in the West. The old man would not go on the brush-pile after all. I developed 20 new phloxes of rare merit last summer. It is delightful to work with God among flowers. I sowed 35 pounds of choicest peony seed last fall. I should like to live to see them bloom. Oh! this is God's wonderland. I want to make the hither shore prophetic of the glory beyond, and dress up Beulah land before I leave it.
>
> York, Neb., Feb. 6. C. S. HARRISON.

Now, this book about the peony contains 64 pages. It is fully illustrated, and mentions several hundred varieties, and quotes from 25 different growers and originators.* The book will interest you because it is a good deal like the letters I have quoted. I am sorry, however, it does not have very much to say about the tree peonies, because they do not do extra well in Nebraska. A few days later I found a postal card on my desk which reads as follows:

> *Dear Sir:*—Are you interested in peonies? We have a fine stock; will be in fine bloom about Sunday or Monday next. C. BETSCHER.
>
> Canal Dover, Ohio, May 31.

"Interested in peonies?" Well, I should say so. I had to laugh to think of its coming just when I was getting the fever. Then I discovered on page 40 of the book I have mentioned a list of peonies grown by friend Betscher. I found by the map that he lives about 60 miles from here; but the State Sunday-school convention that was just coming off was near by, and the two places are connected by an electric line, so I took in both on the same trip. Now, friend Betscher is a very modest man. I supposed he had a few dozen plants around his greenhouse or in his dooryard. Well, that was true. I found enough beauty to pay me for my trip before I discovered that he himself was half a mile away out in the peony-*field;* and I actually found him and his helpers amid three or four acres of peonies in full bloom. The sight of the 75,000 plants was wonderful. It was a revelation. It can not be described on paper. Imagine a handsome thrifty potato-field with half a dozen flowers on every plant, and blossoms as large as saucers. There were not many of them as large as the ones I saw at Oberlin. There were in that field something like 1000 different varieties; and I believe friend B. has tested as many as 1000 different ones in order to get at the best. I asked him if it was not a good deal like the lettuces of America, in that a good many were so much like others that none but an expert could tell one from another. He said that was true; and if I recollect correctly he said they might be cut down to 25 or 50 varieties with no great loss. Some of the plants are quite valuable, as a matter of course.

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* Friend Harrison will mail the book for 30 cents.

Now, you need not all be in a hurry to go into the peony speculation. It takes a year for the seeds to come up, and few bloom fully in less than three to eight years; but you can buy roots at almost any season of the year for a few cents that will give you more or less bloom the second year.

In the *Mayflower* for last November Mr. Betscher wrote up peonies very thoroughly. The article occupies six pages. The tree peonies are earlier, as a rule, than the common kind. and the few he had were out of bloom. Mr. Betscher's outyard was in full bloom at the time of my visit, and it was some days after my trip to Oberlin. As soon as I reached home from Oberlin I sent an order to Storrs & Harrison. They did not fill this order, but their reply was characteristic of that old and reliable institution. They wrote me that the tree peony had given satisfaction only in special favored localities, and that they would not advise me to invest in it unless I was willing to take my chances. Mr. Betscher said substantially the same thing; but after I saw how they had succeeded in Oberlin I invested in three plants, all different. They cost toward a dollar each, and are very small at that, so you see they are now somewhat expensive.

There are many very desirable things about the peony. The early varieties commence blooming in May, and some are now being developed that I think do not come into bloom till July; but they keep in storage until August, giving fully three months of bloom. For cut flowers to take to church, for a wedding, or other entertainments, I do not know of any thing more handsome. Friend Betscher loaded me down with a bouquet about as large as I could well carry. I took it to the Sunday-school convention, then astonished the neighbors with it around home; then the third day after the flowers were cut I took them to church, astonishing every one there; then I delighted the Sunday-school, then the Endeavor Society; and the young people there took them away to carry to the bedside of some sick people in and around Medina; and I do not know how long they held out after that. They were gathered, I think, on Thursday, and on Sunday evening they were still bright and handsome. In order to have them hold out in this way the flowers are plucked just as they are opening. They can be shipped by express long distances, and still hold their beauty. But I must not forget to tell you that on Saturday afternoon I carried them around through the factory, and enjoyed surprising the women-folks especially. It was toward night, and they were most of them weary after the week's work, and not looking particularly animated or bright; but when I pushed my vase of flowers near where they could get sight of them you ought to have seen the transformation in their faces. Up went their hands, and wide open their eyes. It seemed as if the women-folks "caught on" to the good looks of my beautiful flowers, as was evinced by the joy, surprise, and animation on their faces. Where there was a roomful of girls they left their seats and gathered around the beautiful blossoms, and it made me think of the Italian bees on that tree peony at the Oberlin waterworks. My friend, did you ever see a woman who does not look bright and happy when you surprise her with some beautiful flowers? If so, she must be an exception to the general rule. If you wish to make your daughter or wife (or sweetheart) look happy, show her some beautiful flowers when she is not thinking of it or expecting it.

Now, right here I wish to say that I am not much in favor of *cut* flowers; but if you grow them in your own garden or greenhouse it is well enough; but I do not believe in paying out a lot of money for flowers, that fade so soon. Buy a whole plant when you wish to invest, and then you will have perpetual beauty year after year; and a whole plant, a good many times, does not cost much more than the cut flowers.

Now, if you have not got a peony in your dooryard, set right about it and get one. Give them plenty of good rich compost. If you wish to see them do their best, dig down two feet and work into the soil a lot of old well-rotted manure. Perhaps old cow manure is the best. When your peony once gets started it will take care of itself for a hundred years for aught I know; but, of course, they will make many more and much larger blossoms if you dig about them and manure the ground once in a while. The plant has almost no insect enemies.

There is another thing I forgot to mention. The old-fashioned peonies do not have any perfume. On the contrary, so far as I recollect, the odor of the blossom is any thing but pleasant. The new creations, however, many of them, have as fine a perfume as our choicest roses; and the variations, colors, and markings are as well marked as any thing you can imagine.

Are some of you inquiring what all this has to do with the text I started out with? Well, friends, it struck me in this way. I looked at that tree at the Oberlin waterworks just after I had had a good drink of that beautiful water; and it occurred to me all at once that, like the water, the happiness and refreshment we get from flowers is free to all. "Come ye to the waters and drink." You can stand before these floral treasures that God has given us, and drink in to your full, and there is just as much left after you are satisfied, for somebody else, as there was before. The bouquet of peonies that I carried home delighted and made happy hundreds of people, and it might just as well have been thousands. If you put a pretty flower in front of your dwelling or near where passersby can see it, you are a public benefactor. Men and women are made better by the sight of flowers. A baby will stop crying if you hold before it a beautiful plant in full bloom. A bad boy or girl, or perhaps I should say a boy or girl in a bad frame of mind, is often made better by the sight of a flower. They help to drive out Satan. The one who helps to make this world bud and blossom is a public benefactor. Friend Harrison, who wrote the peony book, has got it right where he uses the expression, "Preaching the evangel of beauty." I am glad to say that some of the prettiest of the flowers are not very expensive either. Your home florist will probably furnish you nice roots for 25 cents each; and I think you can get a whole dozen for $1.50 or $2.00.

A friend just informs me that he saw in a dooryard in Chicago about forty different specimens of peonies, and that among them was one I think from Japan that was just a little miniature flower, the size of a small rose, perhaps, but a perfect peony in foliage and bloom.

In closing, let me say a word about having plants outdoors in the yard instead of in the house or in the greenhouse during the summer months. Most flowering plants will take care of themselves the greater part of the time during July, August, September, and sometimes through October. If you have a long and severe drouth, you may be obliged to water them; but it does not require any thing like the care that it does to keep plants in the house or greenhouse. We have every thing out doors now except cyclamens, gloxinias, pelargoniums, impatiens sultana, and achimes. They do rather better, and they are less trouble slipped out of the pots and put right into the soil; but after the roots have started and gone quite a distance it is more difficult to get them back into the pots again when you want to bring them into the house when frost comes. On this account many will prefer to leave them in the pots. To do this you should have a nice bed of rich soft mellow soil. I would make it rich, because the roots of the plants will come through the holes in the bottom of the pots more or less. Let them do this if they will; then plunge the plants in the mellow soil clear up to the rim of the pot; and if you wish to make a real nice job of it, cover the whole surface of the ground between the plants with some kind of moss. You and the children can get plenty of moss in the woods, or you can use the sphagnum used by florists. Let this moss be at least an inch thick. Two inches would be better. Now, when you have a good soaking rain this moss will keep the plants damp and moist until the next rain. It also helps to keep down weeds. This is what is called "mulching." The same plan can be used inside of greenhouses; and it will save an immense sight of labor in watering. The lants that are making me particularly appy just now are those mentioned in the greenhouse, and outside I am havinglots of enjoyment with California poppies, Shasta daisies, flowering maples, evening primroses, campanulas (or bellflower), schizanthus, achimeneas, not to mention roses, geraniums, etc.

Temperance.

NEW KINDS OF WHISKY.

The success of the Duffy people has induced other whisky-makers to try the same tactics. Here is an illustration. A whisky-shop sends out a circular containing the following:

> The preacher, the Prohibitionist, the most exacting, can drink Prepared Cereal "Product" with perfect freedom of conscience, and enjoy its exhilarating effects.
>
> We have no competition—we stand alone in the field. We are the discoverers—the originators of Prepared Cereal "Product."
>
> Members of the Senate are discussing it.
>
> The President has received a case for the purpose of a thorough analysis, and is astounded at our marvelous "Product."

My good old father used to say if you would give the Devil rope enough he would hang himself; and with a little assistance from the churches and from the Anti-saloon League it looks quite likely. The idea that the preacher and Prohibitionist may get drunk on their stuff with a clear "conscience"! In regard to the members of the Senate, I am really afraid there are at least some Senators who are "discussing" the different kinds of whisky. May God help us in our endeavors to get rid of such Senators. Last, but not least, is the amusing statement that our beloved President is "astounded" in regard to their "marvelous" whisky. I wonder what he will say to such a statement. Like all the rest, they declare that their goods will be put up in such a way that nobody will ever guess what is inside of the package. Please note how this whole business, from beginning to end, seeks darkness rather than light. Who would want any thing to do with a business that has to be conducted with such *painstaking* secrecy? "Men love darkness rather than light, because their deeds are evil."

FAKE MEDICAL ADVERTISEMENTS, ETC.

> As I see you are sharp on exposing fake advertisements, I send you a cutting from a Jamaica weekly which circulates largely among the peasantry here, and which may produce much mischief. Many of them are too much addicted to the occult arts without getting any encouragement from mysterious free books. I shall be glad to see you deal with this in GLEANINGS.
>
> Cedar Valley, Jamaica, June 10. JOHN PROVAN.

With the above was inclosed a column advertisement of a mysterious book on hypnotism, magic, etc. No doubt there *is* something "mysterious" about the book. In fact, the advertisement itself is *very* mysterious, for the learned professor pays for more than a column advertisement, and ends up by saying the wonderful book will be sent absolutely *free.* What a good man this professor must be! But he probably has learned by experience that he is going to get some money by some hook or crook of most of those who send for his free book.

A few days ago a friend in some foreign country, who reads GLEANINGS, asked me to inquire and find out if one of these hypnotism doctors was honest and square. He was just about sending the doctor $35 or $40 for a course of lessons in some newly discovered occult art. We can readily imagine that ignorant people in Jamaica might send money; but it is a mystery to me how there can be people here in the United States who would be caught by such senseless falsehoods.

Here is another in the same line:

> *Mr. A. I. Root:*—My attention has more than once been called to the inclosed advertisement by the sick and dying. I was so urged recently to write for the book that I did so. His promise of *no money* is alluring to the poor and suffering. Please note the reply. It seems to me any thing but a *free* matter after you write to them. I have never taken up any thing of this kind. I may not understand them, but it seems to me an outrageous thing. You have done much good through your valuable periodical by exposing such, and I thought you might see this in the light of a fraud, and do something to warn the credulous.
>
> Your exposure of a party recently has brought out gratifying expressions. MISS L. E. SPALDING.
>
> Brooklyn, Conn., June 16.

With the above came a double-column advertisement. Let me quote some of the concluding words:

> "Do you mean that any one can accept this offer?"
>
> "I mean it for any one who is ill, from any cause, and who feels that the doctors do not understand the case, or who does not want to pay doctors' and druggists' bills."
>
> "But how about those at a distance—can you cure them too?"
>
> "Just as easily and just as surely as though they came to my office. Whether they live one or a thousand miles away, it's all the same. A letter to me does just as much good as a personal visit." [No doubt.—ED.]
>
> "And they do not have to inclose any money?"
>
> "Not a single cent. Simply write to me and ask to be cured."
>
> "But it seems strange——"
>
> "Strange or not, I mean just what I say, as any one can find out by writing to me."

The lady sent for the wonderful book; but not withstanding the strong and explicit language the professor wanted $5.00 before he would commence a month's treatment with his wonderful "vito-opathy." He said the regular price was $25.00; but as there were so many suffering people who could not scrape up the above sum, he and those associated with him had, out of the kindness of their hearts (?), reduced their price to only $5.00; and although there was a great mass of literature sent along with it, with affidavits from the bank, and from people who had been cured, there was not a word of explanation or apology for wanting $5.00 for the secret when the newspaper advertisement said so plainly it was absolutely *free*. He tells the same old story of how the government of the United States had investigated in regard to his wonderful hypnotic power, and was "astounded." By the way, that word makes me think of the United States Senators who were "astounded" in regard to the wonderful goodness (?) of the new whisky. And then some big man at the "Institute of Physicians and Surgeons," at Rochester, N. Y., in an address called attention to the wonderful success of this particular professor's distant treatment. It is a little funny that a medical institute should indorse *distant* treatment when the best doctors the world affords have so much trouble in curing people when they are close by their patients, not only every day in the week, but sometimes several times a day.

Now, ridiculous as this whole business is from beginning to end, these quacks must find people who believe their senseless falsehoods or they certainly would not keep paying for double-column advertisements in our home papers.

A Savings Account

Thousands of people are now doing their banking by mail with perfect safety. The U. S. mail, with its free city and rural delivery, brings the strong, liberal savings bank to the very door of every person no matter where they are. You can open an account with this safe bank by simply sending to us

One Dollar or More,

then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

4 PER CENT Interest,

compounded semi-annually, and will be secured by assets of over ONE HALF MILLION.

The SAVINGS
DEPOSIT BANK COMPANY,
Medina, Ohio.

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

Don't get Angry

with your razor. It has a temper of its own. It will work well if you use

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

The J. B Williams Co., Glastonbury, Conn.

SHOW YOUR COLORS

Don't be ashamed of your calling, society, or club. Wear a badge or emblem that others may read as they run. All designs, all metals. ::: ::: :::

Beaux Arts Mfg. Co., - 29 Charles St., New York

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Brood-combs. Please state price.
H. DECKER, Rome, Ohio.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange White Wyandotte eggs or stock, for beeswax, old combs, or solar refuse. Small utility flock for sale cheap. Also 12 S. C. B. Leghorn hens. H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. HAGEN, 1632 Blake St., Denver, Col.

WANTED.—To exchange poultry and bees for any thing in the music line. I am a dealer in pianos, organs, and general musical merchandise, including sheet music. F. W. WALTER, Staunton, Va.

WANTED.—To exchange one 288-egg and one 120-egg size Van Culin incubator, for honey or cash. Also mismated queens at 20c. A. H. KANAGY, Milroy, Pa.

WANTED.—Inventors. I will help furnish money to promote good patent. Write what you have and get terms. O'FLYNG, Clarksdale, Ills.

WANTED.—To exchange 530 T tins 13½ ins. long for $5.00 (new); 92 P fences, nearly new, $1.25; 190 pieces of glass 2½x13½, for $2.00. Will exchange for two-frame nuclei with Italian queen, or for bees on Hoffman frames, or cash. Bees must be free from disease. HERBERT H. FISHER, Elba, N. Y.

WANTED.—To exchange Remington typewriter for honey. My four-line adv. here sold several gasoline-engines. Write horse-power desired; get prices on new engines. Also little used (serviceably good as new) to exchange for well-ripened light extracted honey. New Superior hanging gasoline-lamps for honey. Agents wanted for lamps. MOREY, Lagrange, Ill.

Help Wanted.

WANTED.—An active experienced young man as helper in the apiary. Give full particulars and references. B. WALKER, Clyde, Ill.

WANTED.—At once, unmarried man to work with bees; permanent job; farm work in connection. State age, experience, and wages.
W. P. SMITH, Penn, Lowndes Co., Miss.

Addresses Wanted.

WANTED.—The name and address of those anywhere in the U. S. who expect to buy honey in carload and less than carload lots during 1905.
St. Croix Valley Honey-producers' Association,
Glenwood, Wis.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

FOR SALE.—Leather-colored Italian queens, 50 cts. each. H. A. ROSS, Evansville, Ind.

FOR SALE.—Bee-keepers' Supplies; Root's goods at Root's prices. A. H. REEVES, Perch River, N. Y.

FOR SALE.—Old honey all sold. Write for prices on new crop. C. J. BALDRIDGE, Kendaia, N. Y.

FOR SALE.—A few untested queens at 50 cts., tested at 75 cts. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—White-clover comb and extracted honey; new crop. R. S. CHAPIN, Marion, Mich.

FOR SALE.—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. JNO. M. WHEELER, Winchester, Ky.

FOR SALE.—Full colonies of leather-colored Italian bees at $5.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Italian bees, three-frame nucleus on Danz. frames with queen, $3.50; queens, 75 cts.
H. H. JEPSON, Medford, Mass.

FOR SALE.—Buy of a specialist, honey in season. The most extensive bee-business in Michigan.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—During July, 50 mismated queens at 30c, and 50 old tested queens at 50c.
B. F. AVERILL, Howardsville, Va.

FOR SALE.—Selected cases of second-hand 60-lb. cans, f. o. b. Chicago at 40 cts. per case, in 10-case lots.
B. WALKER, Clyde, Ill.

FOR SALE.—Five to twenty-five hives of bees—A 1 Italians, new Danzenbaker hives, well painted—$5.00 a colonoy. M. C. LONG, 421 Cypress, Kansas City, Mo.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—One pair young pigeons free with each $5.00 order. Full-blooded Homers, extra-mated adult birds, $1.50 to $2.00 a pair; young homers, $1.00 per pair; homer squab breeders, $1.25 per pair.
GEO. S. ASHTON, Lyons, Iowa.

FOR SALE.—First-class Manitoba bee-farm, 7 miles from railroad town; new frame house, honey-house, good shelter, plenty basswood, wild raspberry, all kinds wild pasture; quick sale or not at all; terms easy.
Box 393, Portage La Prairie, Manitoba, Can.

FOR SALE.—The busy man's method of rearing the best queens; saves brood, time, and patience; rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere.
E. H. DEWEY, Great Barrington, Mass.

FOR SALE.—On account of departure, 150 two-story eight-frame colonies; most frames wired; Italians and hybrids; sold cheap if taken in the yards; ideal location and fast-growing retail market; one failure in 20 years.
G. P. HOWELL, 6101 Dauphin St., New Orleans, La.

FOR SALE.—About two acres of very rich land, six-room house and three-room basement, large chicken-house, and other buildings, pasture, shade and fruit trees, 30 colonies of bees. Write for particulars.
SARAH ELLIOTT, Alhambra, Ill.

FOR SALE.—Choice new extracted white-clover honey in barrels of about 550 lbs. net. Can ship in new 60 lb. cans if desired. Write for prices. Sample, 5 cts.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ills.

FOR SALE.—The Carniolan-Italian cross is the bee for honey. Choice queens reared from my breeder whose bees stored 264 sections last season, 75 cts. each or 3 for $2.10. They please my customers. Sixteen years a breeder. Try me. L. H. PERRY, Clay, N. Y.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. HILDRETH & SEGELKEN,
82-84 Murray St., New York City.

Learn Telegraphy & R.R. Accounting

$50 to $100 per month salary assured our graduates under bond. You don't pay us until you have a position. Largest system of telegraph schools in America. Endorsed by all railway officials. *Operators always in demand.* Ladies also admitted. Write for catalog.

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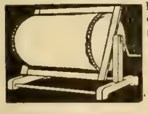
Squab Book Free

Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here's something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
320 Howard St., : MELROSE, MASS.

THIS LIGHTNING Lice Killing Machine



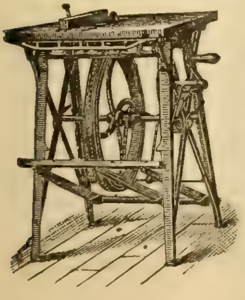
kills all lice and mites. No injury to birds or feathers. Handles any fowl, smallest chick to largest gobbler. Made in three sizes. Pays for itself first season. Also *Lightning Lice Killing Powder, Poultry Bits, Lice Murder, etc.* We secure special low express rates. Catalog sent free. Write for it.
CHARLES SCHILD CO.
1 Frankfort St., **Cleveland, Ohio**

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford, : Illinois.

Easily Fattened Duroc-Jersey Swine

This breed has grown rapidly into favor with raisers in the last few years. The Duroc-Jersey has many champions. Among them are Dr. Walter J. Quick, Ms. Ph. D., Indianapolis, Oscar Mason, S. Y. Thornton. These three experienced swine raisers and writers will contribute to the special July issue of

Blooded Stock

This whole edition will deal only with Duroc-Jerseys. During the past six issues this high grade stock paper has taken one subject for each number. It has been a highly successful plan. Subscriptions are flowing in by scores and hundreds. People are making money by reading *Blooded Stock.* It will pay you. Anybody can pay the subscription—25c year. You'll be dollars ahead. Subscribe now!
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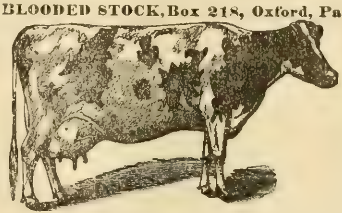

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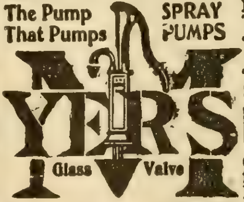
The Pump That Pumps



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Store Ladders, Etc.
HAY TOOLS
of all kinds. Write for Circulars and Prices.

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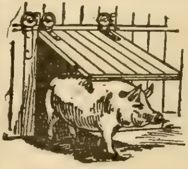
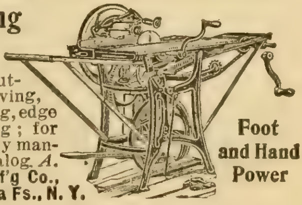


with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO.
Ashland, • Ohio.

Wood-working Machinery.



For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog. *A.*
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Q ❊ U ❊ E ❊ E ❊ N ❊ S

AND BEES

Golden or Leather Colored Italian, the best that money can buy anywhere.

THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

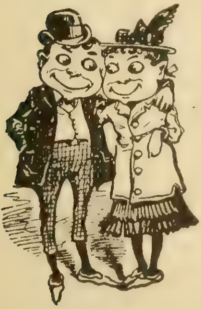
Queens Go by Return Mail.

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	.....
Straight five-band breeders	5 00	.....	.....
Two-comb nuclei, no queen	2 25	12 00	22 00
Full colonies on eight frames	5 00	25 00	.....

Quirin-the-Queen-Breeder, Bellevue, Ohio.

Doolittle's

Partner selecting a queen. If you want the full particulars send for their circular, giving a description of their fine northern-bred . . .



Italian Queens.

If you want honey-gatherers you need look no further. . We are now ready to send out .˙ .˙

Choice Breeders.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, ITALY.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer. Ventura. Calif.

Queens

California

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

PRICES OF QUEENS	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO TEX.

Carniolans a Specialty ! !

ALSO breeders of Golden and Leather Italians. One untested queen, 75c.; six for $3.90; twelve for $6.00. Tested, $1.25. Best breeder, $2.50. Best imported, $4.00. Special prices on large orders. No foul brood here. Bees and Queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free. :-: :-: :-:

Carniolans.—We have bred this race of bees for 20 years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co., - Lake George, N. Y.

We have ready for mailing a large stock of both

Tested and Untested Italian Queens

Either three or five banded queens. Specially bred for their honey-gathering qualities. Price, for tested, $1.00 each, $10.00 per dozen; untested, 60c each, $6.00 per dozen. ::: ::: ::: ::: :::

J M. Jenkins,
Wetumpka, Ala.

Queens Ready Now !

We again have queens ready to mail from our carefully bred *business* strain of Goldens; guaranteed o. k. or replaced free. Fine queens, warranted, 75 cts., six for $3.75; select warranted, $1.00; six for $5.00; tested, $1.25; select, $2.00. ::: ::: ::: :::

J. B. CASE, Port Orange, Fla.

Imported Carniolan Queens!

A LIMITED NUMBER of choice imported Carniolan queens will be disposed of during July and succeeding months. I shall be in Carniola during July making these shipments which will be distributed from Washington, D. C. **Select Imported Queen, $4.00.** Write for rates for three or more. Address

Ralph Benton, 925 N Street, Northwest, WASHINGTON, D. C.

Special Offer

Will sell select tested red-clover queens at $1.00 each, six for $5.00. My bees work on red clover.

Fred Leininger, Ft. Jennings, O.

The Busy Man's Method of Raising Bees, Price, 25c.

Choice queens................75c each.

DEWEY'S HARDY HONEY-GATHERERS.

E. H. Dewey, Gt. Barrington, Mass.

Red-clover : and : Italian : Queens

Average untested, 65c; two for $1.00. Select untested, 75c. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey producers of this and other countries, who pronounce them to be a very superior strain of bees I have spent 21 years in building up this strain of bees. Warranted purely mated, 60c each; six for $3.30, 12 for $6.00. Free circular.

L. H. Robey, Worthington, W.Va.

'The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer

W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

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Lewis' Popular Bee-supplies

By Return Freight or Express,

—Send to—

York Honey and Bee Supply Company

LONG DISTANCE PHONE---NORTH 1559.

141-143 Ontario St., Chicago, Ill.

{Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells St. Cable Line from center of city to Ontario St.}

H. M. ARND, Manager.

A Full Line of Bee-supplies on Hand,

—Consisting of—

Hives, Sections, Shipping-cases

—everything used by the practical up-to-date bee-keeper. ❧ Catalog and prices on honey on application. ❧ If you want good goods at factory prices, and prompt shipment, send your orders, or call on us. ❧ ❧ BEESWAX WANTED—28 cents cash, or 30 cents when taking bee-supplies in exchange—delivered here.

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder

Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

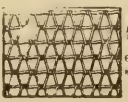
Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case)	$8 50
In Chaff hives	9 50
Bees in any style of hive desired.	
Italian queens, tested	$1 25
Italian queens, untested	1 00
The best veils	40

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

Send for Our Catalog of Bee Supplies

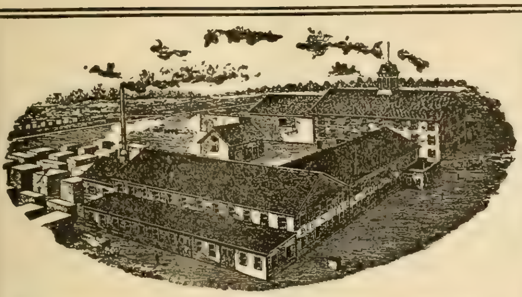
We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. **A. W. Swan & Co , Centralia, Kan.**

FOR SALE.—Bees, honey, land, and timber.
THO. WORTHINGTON, Leota, Miss.



FENCE STRONGEST MADE. Bull-strong chicken-tight. Sold to the Farmer at Wholesale Prices. Fully warranted. Catalog free

COILED SPRING FENCE CO.,
Box 101 **Winchester, Indiana.**



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

DISCOUNTS FOR EARLY ORDERS.

DEALERS IN OUR GOODS.

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa.
I. H. Myers, Lamar, Col.
Southwestern Bee Co., San Antonio, Tex.

Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, - : - Augusta, Wis.

WISCONSIN

BASSWOOD

FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.

MARSHFIELD, WISCONSIN.

SECTIONS
and Comb Foundation

Shipping-cases, Bee-smokers, Bee-veils, Bee-escapes, etc.

Abundance of goods ready for prompt shipment. Orders received in forenoon shipped same day.

Lewis' Goods in Indianapolis at Factory Prices----Cat. free.

Fine Italian Queens

from our yard here in the city as follows: Untested, 75c; select untested, $1.00; tested, $1.00; select tested, $2.00.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danzy., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

Bee-keepers' Supplies.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges. ::: :::

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

Hoosier-Italian Queens---By Return Mail.

Untested Queen	$ 75
Select Untested Queen	1 00
Tested Queen	1 00
Select Tested Queen	2 00
Select Breeding Queen	5 00
Best Imported Queen	5 00
Fair Imported Queen	3 00

North Tonawanda, N. Y., June 6, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I must write you pertaining to the nuclei you sent me. I put them in a hive the day I got them, and to-day they have it crowded with bees and brood. They are the finest bees that I have ever seen, both as to color and to peaceableness, and I shall stock up with them. Lots of bee men have been here to see them. Use my name to back them if you wish, as nothing could be finer. A. F. EILENBERGER.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., INDIANAPOLIS, IND.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The* American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

***The* W. T. Falconer Mfg. Company,**
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

SPECIAL NOTICE

Special Notices By Our Business Manager

Attention is called to the advertisement of the Savings Deposit Bank Co., of this place, in this issue. Our readers may rest assured this is an entirely reliable company. It is also one of the banks with which The A. I. Root Company is doing business.

HOW TO KEEP BEES.

This delightful little volume is sure to have a wide sale among those beginning bee culture. We have arranged to supply the bee-supply trade. Wholesale and jobbing prices on application. Retail price $1.00, postage 10 cts. extra.

SECTIONS AND FOUNDATION FOR PROMPT SHIPMENT.

We have a larger stock of sections than we ever had at this season, and are prepared to make prompt shipment of sections, foundation, and most other goods. There has been very little delay in orders all season except in a few cases where something special has held some orders longer than usual. Our agents generally are also in a position to make prompt shipment. If the bees get lots of honey, and you need more goods quickly, remember we are in a position to furnish them by first train.

CAUCASIAN QUEENS.

We can spare a limited number of imported Caucasian queens, received direct from the best breeders in Caucasus. Prices as follows:

Extra select Caucasian imported queens,	$15 00
Select Caucasian imported queen,	10 00
Extra select untested Caucasian-Italian queens, from Caucasian mothers mated with Italian drones,	3 00
Select do.	2 00

Orders filled in rotation. Delivery begins about July 15.

Special Notices by A. I. Root.

On page 778 I omitted to say that many house-plants, when put outdoors in summer, should be on the north side of the house so as to be in the shade during the middle of the day.

CRIMSON OR SCARLET CLOVER.

This has been tested quite generally throughout the United States; and where it is put in through July and August, with any kind of care, and soil at all favorable, it is pretty sure to stand the winter. But even if it does not stand the winter, the *Rural New-Yorker* thinks it benefits the land enough to pay all expenses. The fact that the demand for the seed is such that the price is constantly coming up would seem to indicate that it is generally a successful crop. The best price we can make at present is $6.00 a bushel; $3.10 per half bushel; peck, $1.60; pound, 15 cts.; by mail, 25 cts. If you are not acquainted with it, I would earnestly advise every one of you to put a little in your garden—a five-cent packet if you do not care to invest any more, and your garden test will plainly show you whether it will winter over safely in your locality. It would be an excellent thing to sow a little seed at different times—say June, July, August, and September. That put in first will probably stand best. It is an excellent honey-plant, probably equal to any of the clovers, and it is also a nitrogen-gatherer equal to any. If you can not do any better, sow some of it broadcast in your corn just before the last time you run your cultivator through it. You can do it with any common broadcast seed-sower while sitting on the back of a gentle horse.

BUCKWHEAT FOR BEE-KEEPERS—SILVERHULL, JAPANESE, ETC.

Once more buckwheat for seed is very scarce, and the price is running up rapidly. We are nearly sold out of Japanese, and do not know where we can buy any more seed. But we have quite a nice stock of silverhull. This has been grown by bee-keepers for twenty years past, and quite a few claim it yields more honey and more bushels of grain than the Japanese. The silverhull is also known as the "gray" buckwheat. In 1882 we sowed four acres of silverhull as late as the 15th of August, and got 92 bushels of nice seed in 65 days from the date of sowing. I do not mention this to encourage sowing as late as that, for that year the frost held off unusually. It is true, however, that the best yield of grain usually comes when the buckwheat is sown as late as it can be without being caught by the frost. Ordinarily, in our locality, it is considered unsafe when sown later than the latter part of July. At the present prices it seems as if it ought to be a good crop for bee-keepers, not only for the honey but for the grain, especially when the price is more than $1.00 a bushel.

Just now the best price we can make is $1.25 per bushel, bag included; half bushel, 65 cts.; peck, 35 cts.; pound, 8 cts.; by mail, 15 cts.

Be careful about ordering small quantities of buckwheat by express to be sent long distances. The express charges may be more than the value of the grain. Better order a bushel or more and have it sent by freight.

AGRICULTURE, HORTICULTURE, ETC., TO BE TAUGHT IN OUR SCHOOLS.

The O. Judd Co. have just put out a very valuable book entitled "Agriculture through the Laboratory and School Garden." It is clear up to date, and is intended as a manual and text book on elementary agriculture. The book contains 402 pages, and is beautifully illustrated from beginning to end. The paper and printing are of the very best. It treats of the nature and formation of soils; preparation of soils; principle of feeding; rotation of crops; propagation of plants, with some greenhouse work that I read over with much interest. "Enemies of Plants" occupies a large part of the book. As I have said, the book is intended for the use of schools; but it will be found to be of immense value to any one who wishes to get a primary general knowledge of agriculture. Cows, milk, butter-making, are included. Toward the last there is an excellent chapter on beautifying homes; also quite a little in regard to pruning. Finally there is a list giving the addresses of all the experiment stations belonging to different States.

In order to have the book cover the ground from all parts, it is the joint work of a man and woman—C. R. Jackson, teacher of agriculture and botany, State Normal School, Kirksville, Mo., and Mrs. L. S. Daugherty, assistant in physical geography and zoology, of the same school. The book also contains a full description of the nitrogen-forming nodules on leguminous plants, a subject which has recently received so much attention from the U. S. Department of Agriculture.

The price of the book is $1.50, postpaid. It can be mailed from this office.

CONSTRUCTION OF COUNTRY ROADS.

Our own State of Ohio has just done a fine thing in sending out a bulletin with the above heading. It was issued in June of this year. I suppose it is for free distribution, but I can not find out any thing in regard to it in the bulletin itself. If you want it, address Ohio Department of Highways, Columbus, and call for bulletin No. 2, on good roads. The whole subject is treated in a masterly way. My impression is it is sound in every particular. It considers all the points that have been brought up in regard to road-making, even the use of oil, as they do in California. Oil is all right in a locality where it does not freeze. Where there is heavy alternate freezing and thawing it is not a success.

The most important discovery in road-making, of a recent date, is the plan of keeping our country roads all the while in such condition that the water will all run off—every "spoonful" of it—after every heavy rain. This is easily and cheaply done by means of a common wooden drag or "floater." But the work must be attended to at exactly the proper time after every shower, or heavy rain. The difficulty of having it done by the average farmer is that his work is not of such a nature that he can stop at just the right time. Some farmers, however, who have caught on to this wonderful invention—for it *is* an *invention*—are keeping the highway in front of their farms in beautiful order themselves; and it takes only a very little time if the road is always kept in good order. Whenever there is a cavity anywhere in the road that will hold water after a rain, get out the scraper and fill up said cavity, keeping the road at all times rounding, and highest in the middle. Of course, there must be good ditches on each side so the water can run off promptly.

The whole world, I was going to say, is waking up in this matter; and it is a shame and a disgrace to any neighborhood to see deep mud-holes in the middle of the road, just before you get to a bridge, for instance—especially to find such mud-holes in dry weather, say in the middle of the summer. A stitch in time in this matter saves not only nine, but sometimes ninety-nine. The scraping can be done very well when it is muddy, if you do not mind a dirty job. Fill the holes up with mud, and let it become hard in the sun, and then it will make the very best kind of filling. In many localities, when the people once find out how good a road can be made of clay and dirt they may well hesitate about going to the enormous expense of stone roads. Of course, it is highly desirable that *grading* be done, cutting down hills and filling up the low spots. But, no matter whether grading is done or not; do not neglect trying this experiment of filling up mud-holes before they get larger. The ordinary tools on every farm will do excellent service. But a wooden drag in the shape of a letter A will probably be needed to scrape the dirt up in the middle of the road to fill up the mud-holes. It does not take much of a team to pull it. In fact, splendid work can be done with a light drag or scraper made for one horse.

Convention Notices.

TEXAS BEE-KEEPERS' CONVENTION.

The Texas State Bee-keepers' Association will meet at College Station with the Farmers' Congress, and will be in session July 25-27. These annual meetings are usually largely attended, and are pleasant and profitable occasions. Visiting bee-keepers from other States are cordially invited to be with us.

W. H. LAWS, President.
LOUIS SCHOLL, Sec.-Treas.
Beeville, Tex., June 24.

THE NATIONAL CONVENTION TO MEET IN SAN ANTONIO, OCTOBER 28 TO NOVEMBER 1.

The International Fair holds its annual exhibition in San Antonio, Texas, Oct. 28 to Nov. 1. When this fair is in progress there are very low rates in force on the railroads out for 600 or 700 miles. Then there are harvest excursions from the North on the second and fourth Tuesdays of the month. The fourth Tuesday in October comes on the 24th. Considering these facts, it has been decided to select Saturday, Oct. 28, as bee-keepers' day at the fair. This will give ample time for members from the North to reach the city by starting the 24th. The regular sessions of the convention will begin Monday, Oct. 30, *and continue three days.*

The Fair Association has designated Saturday, Oct. 28, as bee-keepers' day, and will so advertise it, and especial pains will be taken to have on exhibition hives, honey, wax, bees, and other apiarian products. At this fair will be on exhibition all of the agricultural and other products of the South and Mexico, and a visit to it will really be worth all the trip will cost, to give one an idea of the South and her products.

Then the Texas members propose to give a genuine Mexican supper, which will be free to all outside members. There will be Mexican band and toast-making—in short, it might be called a banquet. On Sunday the members can attend church or go on a trolley-ride around the city. Side trips to Uvalde and other places are planned for all who wish to see the country after the convention is over, bee-keepers at the various honey-centers having promised to take the bee-keepers around free of charge. Texas is one of the greatest, if not *the* greatest, of honey-producing States in the Union, and bee-keepers will now have an opportunity to see her wonderful resources, enjoy the hospitalities of her people, and profit by meeting in convention, all at very small cost.

The headquarters of the National Association will be at the Bexar Hotel (pronounced Baer, long sound of a), corner of Houston and Jefferson Sts., and rates are only $1.00 a day, and up. The convention will be held at Elks' Hall, 125 W. Commerce St., only two blocks from the Bexar Hotel.

Every thing is now arranged except the program, and I wish that every one would write and make suggestions in regard to topics and men to discuss them. If you have no special topic that you wish put into the program, you must surely have some question that you would like brought before the convention. Pour in the suggestions and queries, and let me get up one of the best programs that we have ever had.

W. Z. HUTCHINSON, Secretary.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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— BY —
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A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field.

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Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight. **The Bee & Honey Company, Beeville, Bee Co., Texas.**

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

JULY PRICES

Untested, each.....$ .75; ½ doz., $4.25; doz., $8.00
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Tested, each........ 1.25; Select tested, each 1.50

A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

W. W. Cary & Son, Lyonsville, Mass.

RED-CLOVER AND ITALIAN QUEENS

ROOT'S STRAIN FOR SALE.
Untested, $1; Select Tested $1.50.

Charles A. Myers, Leipsic, Ohio.

GEORGIA QUEENS.
BROKEN UP AT LAST

The severe dearth of honey and pollen has been broken up by a fine flow of honey, and we are again rearing queens from our Superior Golden and Leather Italians; also, Gray Carniolan stock. :: ::
Untested, 75c; six for $4.00; twelve for $7.00.
Tested, $1.00; Select, $2.00; Best, $5.00.
Send for circular. **T. S. HALL, Jasper, Pickens Co., Ga.**

WHY NOT

weed out some of those queens that give little or no surplus? My queens are from one of the most famous strains of three-banded hustlers; gentle, and extra good workers. Untested, June, $1.00; six for $5.00. Later, 75c each; six for $4.00. No disease.

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Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c —after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

PURE = ITALIAN = QUEENS

Highest award at St. Louis, 1904.

Anthony Biaggi,
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becomes greater each year; the following report shows the reason why:

EXCEL IN STORING CAPACITY

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never in my thirty years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel any thing I have ever had." ::: ::: :::

I am now filling orders by return mail and shall probably be able to do so until the close of the season.

Untested queens, $ .75 each; six, $4 00; dozen, $7.50
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Safe arrival and satisfaction guaranteed.
Descriptive circular free :: ::

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THE FINEST IN THE LAND—Untested, 70 cts. each; Tested, $1.00 each. No better queens can be had at any price. I have reared queens over 35 years. :: ::

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Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

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BY RETURN MAIL

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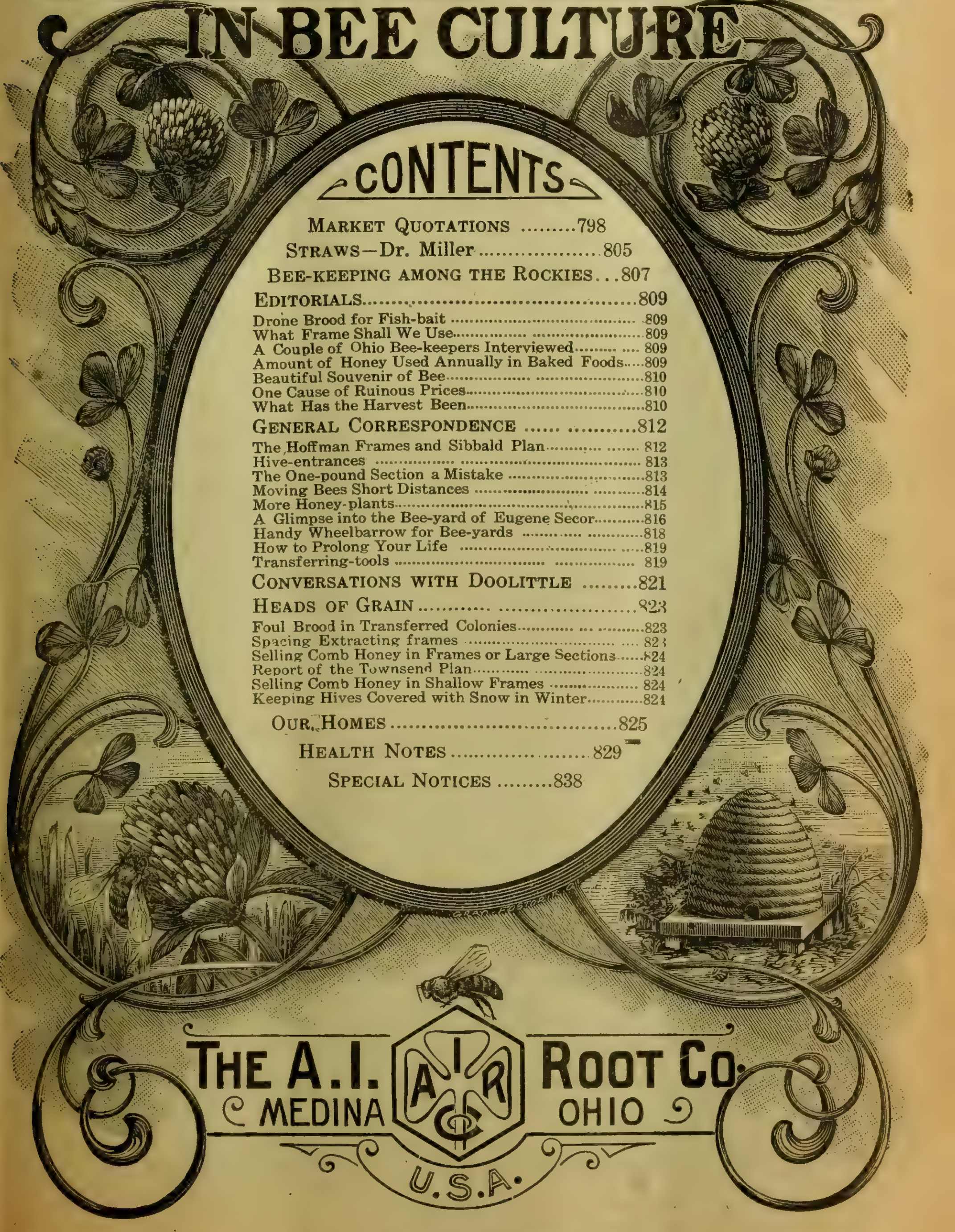

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Stock which can not be excelled. Each variety bred in separate apiaries, from select mothers; have proved their qualities as great honey-gatherers. -:- -:- -:- -:-

Golden Italians.

Have no superior, and few equals. Untested 75c; six for $4.00.

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Which left all records behind in honey-gathering. Untested 75c; six for $4.00.

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They are so highly recommended, being more gentle than all others. Untested 75c; six for $4.00.

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Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Ave.

Cincinnati, = Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

PHILADELPHIA.—The outlook for honey is very good. Some lots of new white honey have already arrived, and are selling in a small way, according to grade, from 12@14. New extracted honey is selling as follows: Fancy white, 6½@7; amber, 5½@6½. Beeswax, in good demand at 28. We are producers of honey, and do not handle on commission. WM. A. SELSER,
July 19. 10 Vine St., Philadelphia, Pa.

CHICAGO.—The market is at a standstill, partly because of the time of year when little comb honey is consumed and partly to await the outcome of the present harvest. The weather is at present ideal, and the flow of nectar makes the bees hum—that hum that puts smiles on the face of the husbandman, though he be weary. R. A. BURNETT & Co.,
July 18. 199 South Water St., Chicago, Ill.

TOLEDO.—The market on comb honey at this writing remains very quiet. The old honey is practically all gone, and no new honey to speak of coming in as yet. A few cases of new white clover brings 14@15, with very little demand for amber. Extracted white clover, in barrels, 6@6½; amber, in barrels, 5¼; in cans, 5½. Beeswax, 25@27. GRIGGS BROTHERS,
July 19. Toledo, Ohio.

BUFFALO.—The first new honey was on our market this week. Best white sold at 15c a pound, and sold very well. Demand was better than usual at this time of the year. There is no demand for old comb honey unless it is very fine stock. Some demand for extracted at 6½@7 for white clover. Beeswax, 28@30.
July 18. W. C. TOWNSEND, Buffalo, N. Y.

KANSAS CITY.—The market on fancy comb honey in 24-section cases at present is $2.75 per case, No. 1 selling at $2.50. Extracted honey brings 5@6; beeswax, 25@28. Receipts of all kinds are very light, and there is no new extracted in the market.
July 19. C. C. CLEMONS & Co., Kansas City, Mo.

CINCINNATI.—There is no demand for comb honey, on account of the warm weather. Extracted is in usual demand for this season of the year. We quote white clover, 7@8; amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28. C. H. W. WEBER,
July 18. 2146-8 Central Ave., Cincinnati, O.

CINCINNATI.—We sold at our store to-day new crop of fancy comb honey at 13½c. There is still a big stock of last season's honey on the market that is going begging at any price. Extracted is moving quite lively now. We sell amber in barrels at 5¼@6½, according to quality; white clover extracted, 7@8½. Beeswax, 26.
THE FRED W. MUTH CO.,
July 10. 51 Walnut St., Cincinnati, Ohio.

FOR SALE.—Our 1905 crop of honey will be ready for the market about August 1. 2000 lbs. of No. 1 comb in 4x5 plain sections; 16,000 lbs. white clover and raspberry extracted for table use; 60-lb. cans of clover at 8c, in new cans; raspberry at 7½c a pound, f. o. b. car. A new feature this year is our system of grading, so nothing but the very choicest extracted is sold for table use. No honey extracted before July 20. All sealed before extracting. A specialist can produce the best if he tries; we try—we have tried for 30 years. A sample that we furnish free to intending purchasers will tell you how we have succeeded. If you are looking for "cheap John" goods don't write to Remus.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—10,000 lbs. comb honey. Can deliver July and August crop in September at 11 cts., f. o. b. in New York or 8 cts. in Havana; all fancy and A No. 1 white, in carriers of 170 lbs. net; nine cases to carrier, 24 sections to case. FRANK REIMAN, Nueva Paz, Cuba.

FOR SALE.—Choice new extracted white-clover honey in barrels of about 550 lbs. net. Can ship in new 60-lb. cans if desired. Write for prices. Sample, 5 cts.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ills.

FOR SALE.—Choice extracted white-clover honey, new crop, in new 60-lb. cans. Sample, 5c.
G. A. BLEECH, Jerome, Mich.

FOR SALE.—New clover honey in 60-lb. cans.
C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.

WANTED.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
THOS. C. STANLEY & SON, Manzanola, Colo.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—Honey in any quantity. State price, quantity, and quality. Address JUDSON HEARD,
110 South Forsyth St., Atlanta, Ga.

WANTED—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St. New York.

STANDARD BRED QUEENS.

BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS

By Return Mail. Safe Arrival Guaranteed.

PRICES	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each $3.00
Two-frame Nucleus and Red Clover Queen 3.00

THE FRED W. MUTH CO.,
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WANTED.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. UDO TOEPPERWEIN, San Antonio, Texas.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water St., Chicago, Ills.

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Columbus, - - Ohio.

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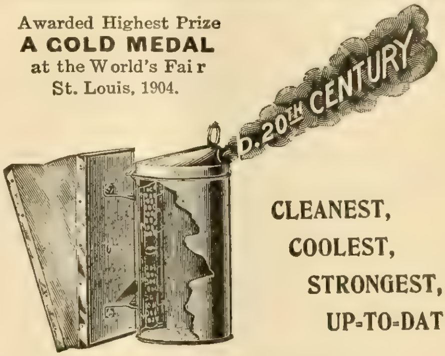
Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



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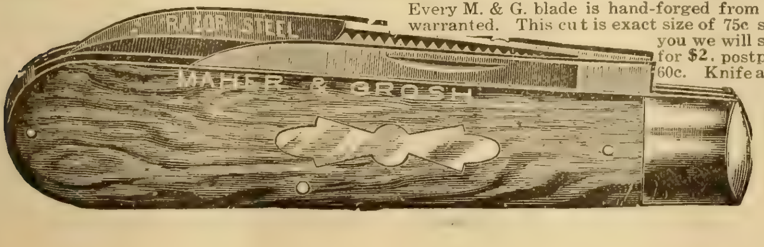

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Established in 1873. 52 pages, semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

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Third.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Fourth.—That contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

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Sixth.—That only one agent will be appointed for any one fair.

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Date..................................

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Fair Contest Department.

Please send agents' terms and enter my name as contestent in Fair Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

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Name of Fair......................... *P. O*..................................

I can use........*sample copies of Gleanings.* *State*...................

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By M. V. Facey, Preston, Minn., in two parts—March and June—will be worth the cost of a whole year's subscription to the RURAL BEE-KEEPER to any person who contemplates such an undertaking. There are hundreds of bee-keepers all over the world who are not doing their best. They are not succeeding as they might because they lack confidence. Mr. Facey handles all his own bees in eleven yards. He tells how he does it. There are many other valuable practical articles in each issue of the RURAL BEE-KEEPER. Subscsiption price, $1.00 a year; clubbed with GLEANINGS, $1.50; stamps taken. :: :: ::

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Send ten cents for this number, and the ten cents may apply on any subscription sent in during the year.

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George W. York & Co.:—The two queens received of you some time ago are fine. They are good breeders, and the workers are showing up fine. I introduced them among black bees, and the bees are nearly yellow now, and are doing good work.
Nemaha Co., Ks., July 15, 1905. A. W. SWAN.

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A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
Published by The A. I. Root Co.
$1.00 per Year
Medina, Ohio

Vol. XXXIII. AUGUST 1, 1905. No. 15

Stray Straws

By Dr. C. C. Miller.

PUTTY-KNIFE for a hive-tool, page 773. Is it strong enough to raise a heavy super?

BROTHER DOOLITTLE, here's a hearty vote of thanks for that article, page 775. On the points there discussed I've always felt shaky, and before you and Mr. Muth-Rasmussen get through I hope to be more solid on my feet.

I'M AFRAID some beginner will be misled by that paragraph about drones, p. 759, into thinking that it will be "very harmful" to suppress them. It should have been accompanied by the comment, "Very pretty talk, only it isn't true." [I quite agree with you.—ED.]

YE EDITOR has now shoved up the extra cost of four-piece sections from 75 cts. to $1.00 a thousand, with the extra labor of putting together, p. 756. Well, that's no more than four-piece sections cost years ago, and the extra labor of putting together no more now than then. Not going to raise chunk honey yet, Mr. Editor, so there.

I MUST CONFESS to just a little fear that so much caging of cells and virgins away from the touch of workers may not be conducive to the highest effectiveness of the resulting queens. [Possibly; but I do not believe there is any good proof yet that would sustain your fears. The fact is, some of these caged cells and queens subsequently make remarkable records.—ED.]

HERE'S AN EASY WAY to get honey out of cappings, especially for those who have a small quantity: Let the honey drip out of the cappings for three or four days in an ordinarily dry place. That's good table honey. Now take it down cellar and let it continue its dripping business. At first it will be fairly good honey, but will get thinner and thinner till it becomes only sweetened water, and then your cappings will be pretty clean. You'll have something that will make good vinegar. But it won't work in Colorado and other places where the cellar is as dry as the attic.

A HIVE-TOOL with a pry, a scraper, a hammer, and a hook, all in one, page 756. Umh, well, may be it isn't too many things in one; but unless it can be added without increased weight, at least the hammer might be left out. [In our yard the hammer feature is very highly prized. No, I would not like to dispense with that; but it is true that we may try to get too many things in one tool and so spoil it.—ED.]

STILL BETTER than the wood screw mentioned as spacer, page 765, and taking much less time to drive in, is a nail with head ¼ inch thick. Thousands of such spacers are in use in Europe, but they can't be obtained in this country. [We tried to get such a nail in this country as you describe, but could not secure them without paying a high price. If we could be sure of a large demand, then automatic machinery could be built by the wire-nail people to turn out nails such as you describe, at a comparatively low price. I will investigate the matter a little further, and see what we can do.—ED.]

JUST FOR FUN I have counted the supers left on the hives in the home apiary July 20, after about 100 supers of finished sections have been taken off. Six colonies have one super each; 16 have two each; 41 have three each; 28 have four each, and 3 have five each. That's not so many as were on a week or two ago, a few colonies at that time having six supers each. [This is all very interesting; but you fail to tell one very important thing: How does this season compare with last year? or, better still, how does it compare with the average season with you? Bee-keepers seem to be reticent as to whether they have a honey crop or not; but I do not believe you are one of those. If no honey is reported, or very little of it, it gives the impression generally that the season has been a failure. Later on, when honey is dumped on the market, prices are liable to go all to smash. The slight upward tendency in prices of generally reported failure is more than counterbalanced by overloading the market at the wrong season, say after the holidays. But I shall have more to say on this subject elsewhere.—ED.]

"IF WE HAVE a fair season, is it necessary that we should have another year in which to determine the value of a queen?" quoth ye editor, p. 756. I think you misapprehend, Mr. Editor. I didn't ask "another year," but merely one "full season after the year she is born." Come to think of it, though, if all queens were reared at the close of the harvest, that would allow time for a full record when a year old. As to deciding on that queen for a breeder because of her record of three days, it might be pretty safe if the record was sufficiently large; but another queen in the same apiary with a smaller record for that three days might make a better record for the season. Wouldn't you rather trust to the record of the whole season than to that of three days? [But the record of the queen that filled the whole super in three days was good the *entire* season. I question very much whether a colony that would make a smart spurt for a few days would not also make a good record as compared with other colonies in the yard. Our old red-clover breeder, which is dead now, would often make a fine showing in the combs when other queens were doing nothing; then when there was a real *flow* of clover or basswood she would jam the honey into the supers in a way that left every thing else behind.—ED.]

BETTER be a little more explicit when you give instructions to beginners, Mr. Editor. Page 761 you say, speaking of dual introduction, "As soon as she is laying, the other virgin . . . is fixed so that the bees can eat out the little plug of candy." I know a man not a thousand miles from Marengo who freed the caged queen directly into the hive at the same time he took away the laying queen, without any ceremony of candy-eating. You see he hadn't read page 761, but went by page 704, "Just the minute she deposits eggs she is removed, and virgin No. 2 is released, when she will fly almost immediately." Some of his virgins thus unceremoniously released were accepted all right. Mostly, I think, they were maltreated or killed. [The editorial in question was written for the experienced bee-keeper, and not for the beginner, who, I believe, should not attempt the dual plan of introducing when there is a possibility of his making a failure with even the single plan. To be sure, you know how to fix a cage so the bees can eat the queen out. We have a little slide that shoves over the candy; and after the virgin has been confined a sufficient length of time so that she has the same body odor as the cluster of bees with her, and the other queen laying and taken out, *then* we pull the slide over, exposing the candy so the bees can eat her out in a few hours. But almost any cage can be handled in this way. If a piece of tin is tacked over the candy, and then pried off at the proper time, precisely the same result will be accomplished. We introduce hundreds and hundreds of virgins by releasing them immediately. But we could not do that on the dual plan that I was talking about. As long as there was a laying queen or a virgin in the hive we could not let out another virgin without bringing on a small-sized war, and a fight to the finish.—ED.]

REASONING pretty good, Mr. Editor, page 757, but a little astray in your facts and suppositions. "A case of sections weighing 12½ pounds is made up of sections that won't crate up well." Error of fact. I've had many a one that crated perfectly; expect to have more of them. "Possibly you were referring to the $1\frac{15}{16}$ section." Error of supposition. I was referring to 1⅞ sections. "You say you have produced many a case of full-weight sections with separators. But this is not saying it was an average." Pray, what has that to do with it? If only one case in a hundred is full weight, should I be obliged to be docked on that one case? Given price enough, and I'll agree in a good season to have the whole average full weight. But I'm not likely to make any strenuous effort in that direction so long as I'm to be punished for it to the tune of 1 to 3 cts. a pound. In my crop of 1903 I notice one case weighed 12 pounds 14 oz., and it cased perfectly. That was without any sorting out for heavy sections, but with some effort to keep down the weight of cases. No, I don't believe we can see alike. But then, it isn't necessary, for I don't know that my digestion would be all right if I didn't have something to quarrel with you about. Just this one question by way of a parting shot: All your argument for full weights bringing 1 to 3 cts. a pound less is based on their being leaky because without separators. Now if that were the real foundation, don't you think that, instead of saying they must weigh less than 16 oz. to the section, it would have been, "they must be separatored"? [If we are going to base our statements on unusual or extraordinary conditions, throwing out of consideration entirely general averages, we shall have a hard job to prove any thing. I feel sure you know that a 1⅞ section does not generally run up to a full pound weight: so what is the use of shoving the exception forward? If commission men were all bee-keepers they probably would put forward that latter statement. But even a case of sections produced with separators might have its combs so fat that they would be bulgy and leaky. It is natural, then, that the commission man should make the statement just as he did. There is not one commission man in a dozen who knows than an overweight or bulgy section is *generally* from an unseparatored super.—ED.]

BEE KEEPING AMONG THE ROCKIES
BY J. A. GREEN

If you are interested in raising your own queens, as you ought to be, you should have a copy of "Baby Nuclei," by Swarthmore.

* * *

J. U. Harris, the President of the National Bee-keepers' Association, is a bee-keeper again, after being out of the ranks for several years.

* * *

Nearly all the surplus secured here this season has been from cleome. It is a very thick, heavy-bodied honey, of a deep golden color, and a flavor that most call very good.

* * *

Some of the granulated honey in paper sacks that has stood on the shelves of the grocers until the middle of July is still hard and firm, while some has become very soft. I think that that kept hardest was the first to granulate, and contained a larger proportion of alfalfa honey than that which softened in hot weather.

* * *

When your smoker becomes incrusted all over the inside with a thick carbonaceous deposit, pour a little kerosene over it and set it on fire, with the top of the smoker tilted back. This will soften the deposit so that it can be easily scraped off; or if you wait until it has burned out it will shrink into a scale that will readily come loose from the tin. Some good friend told me this and I pass it on.

MORE THAN ONE LARVA IN A CELL.

To find several eggs in a cell is a common occurrence; but to find more than one larva is rare, as the bees usually remove the surplus eggs before they hatch. I have seen this several times, and had a very interesting case this summer. In a small colony with an extra-good queen I found a frame of brood in which a large proportion of the cells contained two and three larvæ about a fourth grown. I wanted to watch them closely; but, unfortunately, the queen was accidentally killed, after which the extra larvæ disappeared very quickly.

CLIPPING QUEENS' LEGS.

Some time ago a correspondent of the *American Bee Journal* recommended cutting off a part of one of the large legs of a queen in order to get queen-cells raised, alleging that the bees would at once try to supersede her, and that, by removing these cells before they hatched, the bees could be compelled to raise other cells and thus a large number of fine cells be secured. I never tried it that way; but I have a queen that lost nearly all of one of her large legs in April, 1904, by an accident in clipping. The first season she did as good work as any queen. She is now failing, but the bees show no signs of a desire to supersede her.

UNRIPE HONEY.

It is interesting and encouraging to note the attitude that is being taken in regard to the extracting of honey before it is properly ripened. The great injury that has been done to the honey market by placing upon it an inferior article is apparently recognized as it never was before. It used to be taken quite as a matter of course that a comb need not have more than about a third of its surface sealed when extracted. Nowadays it is pretty well agreed that it is better for the honey to remain on the hive for several weeks; and if it is all capped over, so much the better. The question, "What proportion of a comb should be sealed before it is extracted?" always sounded to me very much like asking, "How much poor honey can you add to good honey without spoiling it?" Why not leave the honey in the hive until it is ripe, and have it all good? Of course, under some circumstances unsealed honey may be ripe; but usually a part, at least, of the unsealed honey is very poor stuff; and the man who puts honey on the market containing much of this is not only foolish but often wickedly dishonest.

EXTRACTING HONEY FROM COLONIES WITH FOUL BROOD.

Elmer Todd, in the *Bee-keepers' Review*, claims that it is safe to extract honey that is above a queen-excluder over a colony that has foul brood. While it is doubtless true that a large proportion of the honey in a diseased hive is not infected, I do not think it would be safe to depend on any of it being incapable of conveying the disease. A great deal of the honey stored in the super has first been stored in the brood-combs, in many cases at least. Indeed, I believe Doolittle claims that most of it has been so stored. If this is the case, it will be seen that any honey in the hive is liable to be infected, no matter how clean the combs in which it is finally stored. I am sorry to see such things published, because most people are entirely too ready to take chances with foul brood, and I wish I could impress it on their minds that it does not pay. There are some methods of dealing with foul brood that work all right in the hands of the expert and careful, but which leave altogether too many chances of spreading the disease when attempted by the average bee-keeper.

THE SEASON UP TO DATE.

As I predicted in an earlier article, the grasshoppers have done a great deal of damage to the honey-producing plants of this locality, especially the sweet clover. In this they were helped by several varieties of worms. The result is that the prospect for a crop of honey is not at all good. Some of the largest producers in the valley have not had any surplus at all yet, and many of the bees are not in good condition to store much honey, even if there should be a change for the better. What sweet clover has not been too badly chewed up is now in full bloom, and for a few days the bees have been getting a little honey from it. The second crop of alfalfa is beginning to bloom, but does not seem to be yielding any honey yet. Reports from other parts of the State indicate as bad or a worse condition of things than here, so Colorado's honey crop is likely to be considerably below the average. This has been a great year for insect pests here; and a remarkable thing about it is the facility with which they adapt themselves to new conditions and adopt a new diet when occasion requires. One of the worst depredators on sweet clover appears to be the common cabbage-worm; and immense damage has been done to the potato-fields here by the well-known tomato-worm, the larva of the sphinx-moth.

SALT FOR FOUL BROOD.

It has been claimed at various times that salt is a preventive of foul brood, and that bees that had access to all the salt they wanted would never have the disease. I believe it was Betsinger, of New York, who used to be very insistent on this. Within a few days J. U. Harris expressed his belief that if salt and sulphur were placed about the apiary it would be effective in keeping off the disease. Now, in this part of the country the water contains a large proportion of salt—so much so that animals do not care for salt as they do elsewhere. When I came here I bought a cow and tried to give her salt, as I had been accustomed to in Illinois. She did not seem to care for it, but I thought she ought to have it and tried various ways to get her to partake of it, without success. When I mixed it with her feed she simply refused to eat, and I soon learned that I need not trouble myself to salt stock. Foul brood is rampant in parts of this valley; but directly through some of the worst-infected territory runs the "Big Salt Wash," a canyon on a small scale, cut through the deep alluvial soil by the flood waters from the hills and the waste water from irrigation. The character of the water that runs through it is sufficiently indicated by the name. If there were any thing in the theory that salt would prevent foul brood the bees here ought to be immune, but it does not work that way.

STRAINING HONEY.

When you buy an extractor you will probably get with it a small sack made of cheesecloth that is called a strainer. The directions will be to hang this in the bung-hole of a barrel or to the gate of the extractor, and run the honey as it comes from the extractor through this sack. I suppose this is a relic of the days when honey was extracted before much of it was sealed, because even in Illinois, with good honey, such a contrivance was not a success. In Colorado it would probably take about ten years to get a barrelful of honey through such an arrangement. My usual way of straining honey is to tie a large piece of cheese-cloth over the open top of a barrel, letting the cloth sag down so that the strainer will hold two or three gallons of honey at a time. Even with this arrangement, I have had difficulty in getting the cleome honey to run through this summer, and have had to warm it to get it to work satisfactorily. In doing this I have used with great satisfaction the method advocated by Mr. G. C. Greiner on page 597. A little oil-stove set under the extractor, which is on a bench very similar to that illustrated, proved a great help, even when the honey was allowed to run from the extractor all the time. It seemed better, though, to keep the honey gate closed and let the honey warm up more thoroughly before it was drawn off. The bottom of the extractor being somewhat enclosed by the sides, the heat is kept from spreading, and the little one-wick oil-stove was surprisingly effective in warming the honey without any danger of overheating it.

THE COLORADO STATE FAIR.

This will be held at Pueblo, Sept. 11 to 15. The writer will assist Frank Rauchfuss, the Manager of the Colorado Honey-producers' Association, in superintending the apiarian department. Colorado bee-keepers are earnestly requested to unite in making this department one of the most interesting and instructive in the fair. The premiums offered are numerous and liberal, and should secure an exhibit that will be extensive, interesting, and of educational value. Begin now to prepare for it, and have something good to show. The following is a list of premiums to be awarded.

Goods properly labeled may be sent by express, charges prepaid, to the Secretary of the fair.

Entries close Monday, September 11.

All exhibits must be in place by 5 P. M., Monday, September 11.

The judges will award the premiums in this department Tuesday, September 12, at 9 A. M.

No article on exhibition can be removed until the close of the fair.

All honey and beeswax must be Colorado products.

Several special prizes are offered in addition to this list.

	1st	2d	3d
Italian bees and queen in single-comb observatory hives	$8 00	$5 00	$3 00
Carniolan bees and queen in single-comb observatory hives	8 00	5 00	3 00
Caucasian bees and queen in single-comb observatory hives	8 00	5 00	3 00
Largest and best display of bees of various races in observatory hives	10 00	6 00	4 00
Largest display of queens of various races in mailing-cages	5 00	3 00	2 00
Best case of white comb honey	3 00	2 00	1 00
Best case of light-amber comb honey	2 50	1 50	1 00
Best and largest display comb honey	10 00	6 00	4 00
Best display of special designs	3 00	2 00	1 00
Best dozen jars of white ext'd honey	2 50	1 50	1 00

Best dozen jars of light-amber extracted honey	2 00	1 50	50
Best and largest display of extracted honey	8 00	5 00	3 00
Best display of extracted honey in granulated form	3 00	2 00	1 00
Best 10 lbs. of yellow beeswax	2 00	1 00	50
Best and largest display of beeswax	5 00	3 00	2 00
Best display of special designs in beeswax	3 00	2 00	1 00
Best display honey-producing plants, mounted	3 00	2 00	1 00
Best display of fruits preserved in honey	3 00	2 00	1 00
Most instructive display of apiarian products and of the various uses made of honey and beeswax	20 00	10 00	5 00

Frank Rauchfuss, Denver..............Superintendent.
J. A. Green, Grand Junction.....Ass't Superintendent.

Editorial
By E. R. Root.

OUR neighbor, Mr. Vernon Burt, of Mallet Creek, O., is such an adept in producing fancy and No. 1 honey that his customers come right to his own yard, paying his own price for it. They know his honey, and are willing to go after it, and they won't get it unless they do. What Mr. Burt has done, others may do. A word to the wise is sufficient.

BE sure you know your commission man before you ship a large amount of honey to him. Those who quote in our columns, we believe to be responsible and honest. Look out for the man who offers you a price above the general average. There is liable to be something wrong. While it is always better to make a cash sale, be sure you get the cash or its equivalent from a stranger before you let your own good honey get out of your hands.

DRONE BROOD FOR FISH-BAIT.

MR. A. J. HALTER, of Akron, O., visited us recently, and during the course of our conversation stated that he was supplying drone brood for fish-bait. Akron is surrounded by a belt of lakes, and angling is quite a sport there. Many of these knights of the rod have been coming to Mr. Halter for drone brood. They specify the age of it shall be just before hatching, when the young drones are white. A young white drone is removed from the cell and strung on the hook. Its color and shape at once suggest to the fish a big fat grub, and anglers say that fish will bite this bait as they will bite almost nothing else. It is especially adapted to all fish with large mouths like bass, blue-gills, and the like. As we are now in the midst of the outing season, bee-keepers and their friends can test this matter. It seems to me I have heard before that drone brood made the very nicest kind of fish-bait, and I should be glad to hear from our subscribers who may know of its value for this purpose.

WHAT FRAME SHALL WE USE?

SOME little discussion has been started regarding the merits of the Hoffman frame. The columns of GLEANINGS are open to any fair article, either pro or con. But do not get the idea that there is any more money in making Hoffman frames than the old-fashioned Langstroth. The basis of profit is practically the same in all styles of frames. The manufacturers, I take it, are not wedded to any particular frame, but, of course, will sell and recommend whatever there is the most demand for. The A. I. Root Co., for example, catalog four distinct types of frames: Closed-end; partly closed-end (Hoffman); open-end thick-top; and, last of all, the old-style Langstroth with top-bar $\frac{7}{8}$ inch wide and $\frac{3}{8}$ thick. Although this last is altogether the cheapest, the demand for it with us is very light; yet some think this is the frame I should recommend to beginners. If I could feel that this were really the best frame I certainly would do so; but I honestly think it is the poorest by a long way. But that does not establish the fact that I am right, or the other fellow. We may both be right for our separate localities.

A COUPLE OF NOTED OHIO BEE-KEEPERS INTERVIEWED.

I HAVE just made an automobile tour of 175 miles, visiting a couple of noted bee-keepers in the northern part of our State. These were none other than H. R. Boardman, of East Townsend, and H. G. Quirin, of Parkertown. I believe the former to be the best-posted man on indoor wintering of perhaps any man in the United States. I interviewed him long and hard away up in the night, and a good part of the next day. This interview I hope to give to our readers some time in September, when the subject of wintering will be up for consideration.

As to Mr. Quirin, while he may not be the leading expert on queen-rearing, he is certainly one of them—at least one who makes money out of bees. And this leads me to say that the item on p. 763, may possibly leave the impression that he furnished the reporter with the exaggerated estimate as to his income as there given. He simply gave him the number of queens he reared, and his expected honey crop, and the reporter figured out the values and profits. Mr. Quirin frankly said he was not making any such money as the item stated. Well, I will give the real facts later.

THE AMOUNT OF HONEY ANNUALLY USED FOR MAKING BAKED FOODS.

I HAVE just learned that the National Biscuit Co. has recently purchased on one consignment *seventy carloads of honey*. Probably the great bulk of this was medium or inferior, or off grades of extracted—perfectly good for manufacturing purposes, but unfit for table use. I understand that this is only one order. How many more carloads the company may be able to take care of I do not know. The probabilities are that, if it were not for the bakery trade, the medium and off grades of extracted would not sell at all. As a matter of fact, nearly all store cookies, jumbles, cakes, pastries, etc., that keep any length of time have to have some honey in them, and the honey must be absolutely pure. Honey, the bakers say, keep the cakes moist and nice; without it they dry up and are unsalable. Nearly all honey-cakes contain some other sweet than honey; but the baker must have the honey pure before he can use it. There is no substitute in the way of glucose or any other sweet than honey; and so long as this is a fact there will be a certain and steady demand for medium grades of extracted.

A BEAUTIFUL SOUVENIR OF A BEE.

Elsewhere in this issue we have made an attempt to reproduce a beautiful souvenir kindly sent us by Frank Benton from old Ireland. It is made of tissue paper, beautifully executed and colored; and as the postal card, for such it is, is opened, a most delightful surprise greets the recipient. A beautiful bee, almost lifelike, spreads its silken wings as if about to fly. The inside of the postal card is a reproduction of wild roses, with all the natural colors of the leaves and flowers preserved. Evidently this souvenir impressed Mr. Benton very favorably, and the reader is referred to page 820, where he will find Mr. Benton's letter announcing his find of "*Megapis zonata.*" Knowing that Mr. Benton was somewhere in Europe I addressed a letter to the Department of Agriculture, Washington, and received a letter from Dr. E. F. Phillips, who has charge of the apicultural work during Mr. Benton's absence, stating that these souvenirs can now be obtained in Washington.

I suggest that you send and get one, and then, if you are a single man, mail it to your best girl, with a sweet little note inside. It will please her, I assure you.

I only regret that we can not reproduce the thing in colors as it is. I have decided to have mine framed, with Mr. Benton's autograph letter, to show to our bee-keeping friends when they come to visit us.

ONE CAUSE OF RUINOUS PRICES.

There is a conspicuous absence of reports from the clover belt, indicating what the honey-flow has been or will be. While, undoubtedly, the season has been poor, I suspect the lack of reports is not altogether that no honey has been secured, but because some producers fear that it would be an unwise policy to report a good flow, on the ground that it would depress the market. Probably the majority of our readers have neglected to write at all. A year ago such reports as we did receive indicated a poor season. The *immediate* effect was a stiffening of prices; but when the carloads and carloads of honey that had been produced (but not reported) were dumped on the market *late* in the season it sent prices away down with a crash, and they stayed there. Better, far better, to have known the actual condition in the first place rather than to have had a demoralized market, as we did have after the holidays. No good comes from holding back facts and figures. If there has been a big crop, let the fact be known, and that right early. The effect of this information will be to induce large numbers to market early, when prices will be fair, and honey will move easily at fair prices. This will get rid of a large part of the honey in the early part of the fall, when it sells best. That which is held hack, when finally unloaded will not hurt the market nearly as much as if it were *all* unloaded late with only a few early sales made. "Bulling" and "bearing" the market early in the season is liable to have a bad effect later on. To "bear" the market—that is, to depress prices by sending out false information to the effect that an enormous crop has been secured—has a tendency to hold back shipments; then when they *must* be unloaded there is liable to be a slaughter in prices. "Bulling" the market by not reporting crops secured is almost as disastrous, for there is bound to be a slump in prices when the *unexpected* honey is suddenly dumped on the market. An effort should be made to avoid flooding the market at a time when it can not stand it.

WHAT HAS THE HARVEST BEEN?

Although the reports have not come in as freely as I could desire, yet, taking all sources of information, including such reports as we have received, I am not far from the truth when I say the crop has been a light one, taking the United States as a whole, and an entire failure in many localities. The conditions in California and Texas are not materially different from those already reported. In the southeastern part of the United States, particularly in North Carolina, the season has been almost a failure. Apparently Michigan, Wisconsin, possibly Minnesota, Northern Illinois, and Ontario, Canada, will have a fair crop of honey. The prospects were dubious two or three weeks ago, when there was a change for the better. New York and Pennsylvania report all the way from a fair to a poor season. New England seems to be in the doubtful list yet. Colorado will be very much behind its general average; and this is particularly so for the western slope. One correspondent protests against the estimate made by J. U. Harris, in our issue for July 15, to the effect that 60 per cent of an average crop had been harvested. He thinks that not more than 5 per cent of a crop had been secured, and that the prospects are not good for more than 25 per cent of a crop.

Later.—Since the foregoing was written I have had a talk with our neighbor, Vernon Burt, who says his bees are still storing honey slowly from peavine and white clover. He thinks they will continue to do so, from the amount of forage in sight, till September. He further believes that his bees have been doing even better than they were two or three weeks ago. Those who are located in the clover belt, where there is still considerable white clover in bloom, as well as peavine and common red, will do well to look to their bees and see what they are doing. Do not give up yet. You may get a fair crop of honey. The recent rains, which appear to be general, came just as it was beginning to get a little dry. Queer season this.

COLORADO HONEY CROP ALMOST A TOTAL FAILURE.

Just as we are closing up the forms the following comes to hand:

> *Dear Sir:*—To this date there has been no improvement in the honey situation worth mentioning. Have not heard of a single super being taken off the hives in all of Northern Colorado. It begins to look as if we would come nearer to having a total failure of the honey crop than any time before. F. RAUCHFUSS,
> Mgr. Colorado Honey-producers' Association.
> Denver, Colo., July 28.

I hope every one of our readers (whether they have sent one before or not) will send in a one-sentence report—not more than that—on a postal card as soon as this issue is received. Do not delay it one minute. This is very important to you as well as to your brethren in the craft

A COUPLE OF VISITORS AT THE HOME OF THE HONEY-BEES.

WE had a call from the Rev. Dr. D. E. Lyon, of Matawan, N. J., one who has lectured considerably on bees., and who has been and is now writing a series of articles for various magazines on the subject. He is an expert photographer, and the reader will probably find his communications with his photos in several of the leading magazines. One of his articles will appear soon in *Country Life in America*. He took a number of photos here, some of which will later be given in these columns.

We also had a call from Dr. E. F. Phillips, of the Department of Agriculture, Washington. He has charge, during the absence of Mr. Benton, of the Division of Apiculture. Dr. Phillips is peculiarly well fitted for his position, being a post-graduate university man, a trained entomologist, and last, but not least, a bee-keeper.

THE GREASY WASTE SMOKER FUEL AGAIN.

WE have received quite a number of letters of commendation for the suggestion made editorially on page 704, July 1, regarding the value of greasy waste, oily rags, and the like for smoker fuel. From reports it would seem that there is any quantity of this stuff thrown away that can be obtained by bee-keepers simply for the asking. Whether or not there are local machine-shops and printing-offices where this fuel can be obtained, one can usually get all he requires by walking up the track a mile or two and gathering up the waste that is usually scattered along here and there. This will also be found more particularly near depots and other places where there are side-tracks. Where none of the materials spoken of can be obtained, one will usually be able to get some old gunny sacks by going to warehouses where grain is bought and phosphate sold.

The reports all agree that the waste or rags do not creosote the smoker; that the smoke is clean, lasting, and very effective; and, what is of considerable importance, is readily ignitable.

ANOTHER "HOLDUP," BUT THIS TIME BY A SWARM OF BEES.

We clip the following from the Cleveland *Press:*

> A SWARM OF BEES PARALYZES DETROIT'S TROLLEY SYSTEM.
>
> In Detroit, on July 7, a swarm of bees lit on a trolley wire at Michigan Av. and Griswold St., the heart of the city, at 4 o'clock Thursday afternoon, blocking the entire street-car service for a time.
>
> A thousand people were attracted to the scene. A section of the swarm, loosened by a jar on the wire, fell off in a mass on the pavement, while the crowd stepped back with the greatest haste. Hundreds of the bees flew into the passing street-cars, while the passengers frantically fanned the air in fear, and it was not until a man who had seen bees "housed" before, arrived on the scene with a small wooden box on a long pole that the excitement subsided.

In a crowd of a thousand people I should suppose some "bee-man" might have volunteered in a very short time to take the bees out of the way. The fear of bees, like that of automobiles and a good many other things, is largely because the people do not understand the "critters." The more you know about *any* enemy, real or imaginary, the less there is to be feared.

Apostrophe to a Honey Bee

by MRS. E. H. HAFFORD.

Wonderful Honey-bee! thy tireless industry
    Inspires my song,
Light as a summer breeze
You flit 'mid flowers and trees
    The whole day long.

Warrior and architect, you build and you protect
    With skill and care.
No forcing law or creed,
Yet for thy country's need
    You do and dare.

None in thy humble home lives for himself alone
    In human greed;
Ceaselessly to and fro,
E'er to supply ye go
    The common need.

Why should not human kind, so helpless, weak, and blind,
    Learn this from thee—
That, in our common good,
When rightly understood,
    Safest are we?

Paw Paw, Mich., May 19.

GENERAL
CORRESPONDENCE.

THE HOFFMAN FRAMES AND THE SIBBALD PLAN.

Some Corrections Concerning Them.

BY L. STACHELHAUSEN.

In GLEANINGS for June 15 I find my article on the subject of Hoffman frames, in the *Rural Bee-keeper*, mentioned twice. An editorial speaks of it as a very readable article, and Mr. Harry Lathrop criticises it. In both cases the Hoffman frame is compared with the unspaced loose hanging frame of twenty and more years ago. I think it is a rule of literary courtesy to read an article before criticising it; but this was not the case here, as I compared the Hoffman frame with another *fixed* frame, and not with this loose hanging frame, which, too, I consider as not satisfactory. The space between two of my frames is fixed by some device on the rabbet, and for this reason all that Mr. Lathrop says about these loose hanging frames may be true, but has no bearing on my article. My frames can't move and do not move in transportation from one apiary to another. For twenty-five years I have used such frames and hive-stories about 5⅜ inches high for brood-chamber and super all alike, and for such shallow frames this kind of spacing is sufficient. It would be astonishing for every bee-keeper to see how easy such hives and frames can be manipulated. For deeper frames like the Langstroth a second spacing-device of some kind near the bottom-bar will probably be necessary.

I find a mistake on page 645 in an editorial on the subject of the Sibbald plan. You say, "Mr. Sibbald makes it emphatic that the new hive on the old stand must have one frame of brood *and the queen.*" No, sir! He gives to this swarm one frame of brood with one or more *queen-cells*. The old queen remains in the parent colony; and the purpose of the whole manipulation is that this parent colony may be weakened so much that the queen-cells will be destroyed by the bees. This will be in four to six days. If this is the purpose the plan will work all right, especially if some more bees without the queen are brushed or shaken into or in front of the swarm, to weaken the parent colony still more. The plan is not new. It is described in a book written by G. Wurz, printed in Germany in 1889.

If the division is to be permanent and for increase I would not recommend the plan. In such a division the colony with the least brood should receive the old queen. Shaken swarms on the old or on a new stand are much better.

If you use a modification of the Sibbald plan, and give the queen with this one brood-comb to the swarm on the old stand, you have the same condition as with a shaken swarm, except that you have in the swarm fewer bees and no young ones, and you must hunt up the queen in the old colony. This takes considerable time and is not necessary with a shaken swarm. As with the Sibbald plan, you can reunite and prevent swarming in this way; but it is necessary to wait till one of the young queens has hatched in the parent colony, and has destroyed the other queen-cells. This will probably take a few more days than with the Sibbald plan.

Now a few words on the plan of dividing a colony temporarily, and reuniting when the queen-cells are destroyed. I have found that, for extracted honey, we have ways to prevent swarming which take less time and labor. For comb honey I prefer to use a large brood-chamber (three stories) before swarming-time to favor the development of the colony as much as possible. When the honey-flow commences I make a strong shaken swarm, hive it in a *contracted* brood-chamber (one story) on starters, and so force the bees into the sections. In this way I can get more honey in sections than if the brood-chamber or a part of it with now many empty cells be given back to this swarm in four or six days.

Converse, Texas, June 24.

[A frame-spacing rabbet has been advocated at various times; but so far as I know this arrangement has never been very popular, and I was not aware that so extensive a bee-keeper as Mr. Stauchelhausen was using it. As I said in my editorial in our June 15th issue, and say again, his opinion is well worth consideration.

I also accept the correction in regard to the Sibbald plan of non-swarming. I was expecting to go over the proof just before it went to press; but yard work started up with such a rush that I was obliged to go out into the field at that particular time, with the result that the error passed uncorrected.

Regarding the Sibbald plan of non-swarming, my experience this summer has not been altogether satisfactory, for the simple reason that the bees seem very much inclined to go back to the old entrance, no matter whether a new queen was in the new hive or whether there was very much brood or not. In order to make it work satisfactorily the entrance of the old hive should, I think, be some distance away; and in the case of one colony of hybrids, at least, I had to turn the entrance right about face, and in the course of an hour or so I discovered that the old field bees had found their old home. Then I carried it to another new portion of the yard, and here again the field bees found it. This may have been an extreme case, and that of the others mentioned unusual. I hope so.—ED.]

HIVE ENTRANCES.

Would it Not be Better to Have the Entrance Between the Brood-chamber and Super?

BY ADRIAN GETAZ.

Perhaps I might as well, for this time at least, simply give the facts and let the readers draw their own conclusions.

Some years ago a preacher in Amsterdam, Mr. Richards, took a notion to have a hive, though he lived in the midst of a large city. There was no place for the hive except in the attic of the house, and this was in such shape that, to give the bees an opening outside, it was necessary to have the entrance on the top of the hive, or, rather, the brood-nest. The following year he made arrangements to keep his bees in the country—moved his colony there, and bought another one. The entrance of the first one remained at the top—that is, between the brood-nest and the supers. During the three following years the colony with the entrance at the top gave large yields of honey (one year as much as five supers), and never swarmed, while the other never gave more than one super. All this was extracted honey.

The next item published was from Mr. Bourgeois, in Algeria, who stated that, with the entrance between supers and brood-nest, the yield is considerably greater and the swarming suppressed.

By that time the bee-papers of France, Belgium, and Germany took hold of the matter. A number of bee-keepers tried the plan, and all reported it a success. One estimated the amount of surplus obtained as five times greater than by the usual method, and in one case six times. The discussion brought out the fact that, in some portions of Eastern Europe, the straw hives used by the peasants are quite tall, and have the entrance (a big round hole) at the middle instead of at the bottom. The practice followed for perhaps centuries by the peasants of the Gatinais was also recalled. At the beginning of the honey-flow the Gatinais peasants turn the hives upside down. On the upturned hive (or, rather, straw skep, to use the English term) another is placed, leaving thus the entrance in the middle between the two. If the top one is already filled with combs, so much the better. If not, it is "baited" by fastening a small piece of comb at the top.

The surplus flow in the Gatinais is very heavy, but lasts only three or four weeks. The honey is decidedly superior, and is taken entirely by the Paris market at an advanced price.

Could we not do the same, or at least try it on a few colonies? A few conditions must be considered. The European apiarists work exclusively for extracted honey. But that does not always mean a full set of extracting-combs. Usually the apiarist distributes his combs among his colonies as far as they will go, and completes with foundation or even only starters. It is yet among them an open question whether it is not better to melt every year a portion of the combs and let the bees build new ones. This is in view of the fact that the difference in price between wax and honey is considerably greater there than here.

Another feature may have a bearing on the question. All the frames used in Europe are deeper than ours, some only two or three inches deeper, others considerably more.

The last articles published on this question state that it is best to close the lower entrances. Some tried to leave both entrances open. That a considerable increase of surplus is obtained by that method is now an establishled fact. The application to section honey might offer some difficulty. It is necessary for satisfactory comb-building that the supers be warm and without air-drafts. I have just rigged up a few hives for the purpose; but the entrance, instead of opening directly outside, opens in a passageway which extends from there to the alighting-board, thus avoiding direct draft. I'll try, any way, and report.

Knoxville, Tenn.

[Friend G., placing the entrance higher up than the bottom-board is not new by any means; but the idea that a much larger amount of honey would be secured or has been secured is new. The first hive I ever used was King's American hive, that had two entrance-holes near the top, to be opened in warm weather. As the bees rather preferred this shorter cut it would seem that they might gather a little more honey because of the saving of time in unloading; and for any tall hive or tall frame I should think very likely this would be an advantage. The Langstroth hive, however, is so shallow, especially when there are no supers on, that little is gained in having the entrance higher up. During exceedingly warm weather I have often thought I secured more honey by giving the bees ventilation between the upper and lower stories — of course, leaving the lower entrance open: and as the bees soon begin to use this upper entrance for carrying in honey, it seems as if it might be some advantage. It hardly seems possible, however, that the increased yield is as much greater as you state it, and no one has yet found it out, because upper entrances are quite common in many apiaries, especially during the hot periods.—A. I. R.]

THE ONE-POUND SECTION A MISTAKE.

The Laxity of the Pure-food Laws.

BY G. BOHRER.

On page 596 Mr. Virgil Weaver states that there is no big demand for comb honey so long as it is put on the market in one-pound packages. Had he called them "*so-called*" one-pound packages he would have covered more ground; for the truth about the matter is that, while the section is called a pound section, it seldom weighs a pound, often falling short three or four ounces; yet it sells in most cases at pound prices, not by weight but by the piece; and this fact has brought comb honey in this form into disrepute. I often hear people say they would buy more honey, but these sections do not weigh a pound; yet when we buy a section we pay the price of a pound for it. This being the case, I feel compelled to agree with Mr. Weaver, in part at least, when he says he thinks the section itself has done more damage to the comb-honey market than all other agencies combined, and calls up the comb-honey falsehood as having its origin in the section. I do know that, as often as I have been confronted with the artificial-comb story, the section has been pointed to as the chief support in favor of the falsehood. But the statutes of the country, both State and national, are also very largely at fault for the dull sale of honey; for in many of the States the law does not impose a penalty upon persons for labeling glucose "pure honey;" and thus many thousands of pounds of that unwholesome product are sold annually under the name of honey, there can be no reasonable doubt. In view of this fact, let us yoke the two frauds up together, and then dismiss them from the bee-keeping profession. Glucose can be gotten rid of only by stringent legislation. The section can be called, when filled with honey, by its true name—that is, an expensive luxury, which it is, as it costs more labor and money to produce it than it does to produce comb honey in any other form, and extracted honey costs altogether less than comb honey in any form. Besides, it is much more wholesome as food than comb honey, for honey-comb is not at all digestible, but, on the contrary, is an irritant.

"But," says one, "comb honey in sections looks so much more beautiful and attractive than in the comb cut out of boxes or frames." This is not a fact except as we induce ourselves to think so. Chunk honey in shallow frames can be put on the market in almost as handsome shape as it is in the section; and if put up in buckets it need not, if properly handled, present an unsightly appearance; and it can be produced much cheaper than section honey, and custom will require it to be sold by weight, so that, when the consumer buys a pound, he pays for a pound only, instead of paying for a full pound when he gets only a part of a pound. If a few persons will persist in wanting section honey, call it "dude" honey, and in a brief period of time it will disappear from the market; and if it is *looks* they want, sell them a picture of section honey to hang on the wall of the dining-room, where they can look at it to their hearts' content.

The expense and cheat there is in section honey, and the glucose sold under the label of "pure honey," are the two great stumblingblocks in the way of a much greater demand and sale for honey.

Lyons, Kan.

[Friend B., you are, in my opinion, taking a very extreme view of this matter. It was my privilege to give the one-pound section to the world. At first there was quite a hue and cry against it from some localities; but I think there are hundreds among our readers who will bear me out when I say that its advent gave the sale of honey a great impetus all over the land, and I might almost say all over the world. Thousands purchased honey because of the novelty and attractiveness of the new package. Besides, it was cleaner and neater than any thing before offered; in fact, it has boomed the sale of honey and the business of bee-keeping to such an extent all over the world that my opinion is it would be a pretty hard matter to get the public to go back to honey in boxes or even to larger sections. It is true, of course, that something different may attract the attention of the great honey-consuming public. This is true in almost every thing. When Captain Hetherington and Mr. Danzenbaker started the tall section in place of the square one there was quite a rush for it *because* it was something different. I suppose there are certain people, and always will be, who want chunk honey; and, of course, every enterprising bee-keeper will be ready to let them have it. By all means, give the people what they want; and once in a while give them something different by way of variety. But I think it will be a long while before chunk honey can be sold by the carload at the prices it now brings in one-pound sections. If the buyer and seller insist on calling a section a pound without weighing, they should be made to average at least a pound, and any thing else would be a fraud unless the grocer explains to his customers that it is so much a section without regard to weight. See p. 824.—A. I. R.]

MOVING BEES SHORT DISTANCES.

How it is Done.

BY O. R. BOSTOCK.

During the past two or three years GLEANINGS has contained a large number of articles on this subject, especially the last few months. In all these letters I have not seen one which mentions any of the principles I have found to work very well indeed, and I have moved several apiaries various distances, from a few yards to three miles.

It is well known that, if we move a hive of bees less than three miles, many of the bees, when out at work, will recognize old landmarks and return to the old location and be lost. Where the winters are severe, and the bees confined to their hives for several months at a time, they could, of course, be moved at the end of that time without loss, as they take bearings afresh on the return of warm weather; but here, where the bees can fly all the year round, these conditions do not exist.

I prefer to move during late spring or early summer, when the bees are at their busiest time, preparing to swarm. The first thing I do is to draw the hives close together into groups, each group consisting of from two to five hives, according as is most convenient and requires least handling. I prefer to place three in a group. This moving must not be done too rapidly. I start by moving each hive about one foot a day, of course moving stand and all complete. The two outsides are thus brought nearer to the center of the group. Sometimes the hives are very scattered; and it takes a long time to get them together. On each visit I move them a greater distance than I had done before, so that they will soon be going at the rate of four or five feet a day. If the distance is far I turn the hive round a little each time, so that the back is looking the way the hive is to go. I do all gradually and quietly, so as not to disturb the bees more than I can help.

After the bees get used to this moving, the distance can be rapidly increased per day. They get educated to following their hive up, and I have often shifted it as much as 25 feet at a time. When they see the *front* of the hive looking toward the place it was taken from, they follow it up much more readily. On reaching the center it should be turned round again, and all be looking the same way.

Having accomplished this, and got all the hives into groups, I next come along some day when the weather is bright and warm, and the bees flying—preferably in early afternoon. I select the weakest hive in each group, and give it a good smoking. This is done to prevent fighting and make them treat strangers with civility. I then remove the rest of the hives that have composed that group, setting them down temporarily a few yards away so as to get all away quickly and not let any fighting start. The flying bees, finding only one hive left, all go into that one. On account of the smoking, the guards will not offer resistance, and there will be no fighting; but, all the same, I smoke them again after a few minutes to make sure. The removed hives are then taken right away to their new stands, and what was a weak colony will now become a powerful one; and if it does not pile in the honey, it ought to. If increase is desired, and all the hives are strong, I prepare a new hive, having one frame of brood and a queen-cell, and the rest as for a swarm. I then remove all the hives from the group, leaving only the empty one in their stead. This is a most excellent way to make increase.

The second process has now been accomplished, and we have the majority of the hives removed to their new locations; but there still remains one hive in each place where a group has stood. We now proceed again, as in the first case, and draw up the remaining hives into groups, and these groups will again be removed, with the exception of one hive. By this means the entire apiary will soon be reduced to one group, and finally to a single hive. This hive should be left there for several days, so as to receive all the bees that may return, when it also will be removed.

By following this process we lose only the bees that return from the one hive instead of from, say, fifty hives, or every hive in the apiary. Instead of a loss, as is usually the case, the manipulation has resulted in a gain, either in honey, for it will have discouraged swarming, or else an increase in the number of stocks. If the last remaining hive is removed in the evening, and taken a distance of three miles or more, we have accomplished our object, and not a bee has been lost.

Fernhill, Napier, New Zealand, June 3.

MORE HONEY-PLANTS.

BY W. K. MORRISON.

Speaking broadly it may be asserted the leading trees of the world are valuable plants to the honey-bee. The great lumber trees of the tropics, teak, ebony, mahogany, logwood, rosewood, lignum-vitæ, greenheart, sandalwood, gutta-percha, and other trees of great value in the commercial world are also honey-furnishers as well as producers of very fine hard wood. What immense possibilities does this fact open up to future generations who will have to plant forests of these trees if a steady supply of lumber is wanted, and it is barely possible we shall ever find adequate substitutes for them!

In mentioning the foregoing trees I am fully aware a large number of great tropical trees are unmentioned, though of value to the bee-keeper. I have already referred to some of the principal tropical fruit-trees as nectar-yielders, in a former communication. But there are many yet unmentioned. What I wish to see is more attention on the part of foresters to the value of some trees as nectar-yielders. It would be quite possible to plant a forest in the tropics which would supply a steady yield of honey the whole year round, which would go a considerable way toward paying for the care of the trees.

There are also trees like the tamarind and *Inga dulcis* which yield a valuable product in addition to the wood and honey. The cinchona (quinine) tree is another of the same sort. Nor do the tropics monopolize all the good things in this line.

Among northern trees the persimmon occupies a similar place. Its wood is almost as close-grained as boxwood; its fruit is good, and, in addition, it is a nectar-yielder. Its fruit is probably best in a dried state, hence it offers great opportunities for culture on a large scale. The Japanese are the only people who can be said to have studied the persimmon seriously. In Europe it is known as the lotus (*Diospyrus lotus*), and may be the fruit of the ancient lotus eaters, at least the botanists have so thought, hence its name.

The St. John's bread, locust, or carob bean, is "the really and truly" locust of all the ages; all others are frauds. It is supposed by many to be the original locust of St. John the Baptist, and I incline to that opinion. I believe it is the "husk" of the prodigal son, for the reason it was very common in the East in those days, and is still, and is a famous food for swine, though it is pretty good for humans as well, provided one gets the insides as well as the "husks." The translators of the Bible evidently thought so or they would not have said "locust," and all down through the ages this has been the popular opinion. That this is the real locust of the Bible is borne out by the fact that it is a good honey-yielder in a hot arid country, and it is said the Baptist was a honey-eater. The modern critics have pronounced against this idea lately, but I imagine these men are better acquainted with linguistics than they are with natural history. For the Southwest of the United States it will prove in time to be a valuable food for stock grown with a minimum of labor, and very nitrogenous. Any way, it may be earmarked as a bee-keeper's friend.

Boxwood is another friend of the bees, besides being the finest and best-grained of all woods. It is a slow grower; but as one tree is worth a small fortune it is worthy of serious attention on the part of tree-growers. It is true the honey is bitter to the taste, but likely this bitterness disappears if the honey is stored awhile.

Among all the hedge plants I have ever seen I think the tropical lilac (*Duranta plumiere*) takes the first place. The bees go crazy over it, and it blooms quite awhile. After the bloom is gone it holds its berries till it is almost time for it to bloom again, so that it always looks well. Florida and California nurserymen sell it, so we may conclude it grows further north than the tropics. There is another handsome "lilac" (*Petræa volubalis*), which is a great tree for bees, but I doubt if it grows outside the tropics.

The *Vitex agnus castus* is another "lilac" which is better suited to the Southern States. It is a very popular garden tree in Europe. It is a bee-plant of considerable merit.

Ivy is not generally set down as a honey-yielder, but it is a real good one, and it blooms at a good time.

Corn is not generally set down as a yielder of the nectar sublime; but in tropical countries it is a very valuable honey-plant, showing the importance of locality, showing also that corn is a native of the tropics.

The century plant, despite its reputation, is one of the world's best honey-plants. It is a grand sight to a bee-keeper to see the eager way the bees work on the flower, perhaps 200 or 300 bees on one flower at a time. Contrary to its name, it blooms about as often as other plants. I should like to live in a locality which had plenty of it. As the century plant grows on land that has usually no value for agricultural purposes this opens up a vista of possibilities. There is a great deal of land in the United States suitable for this plant, which could be bought for nothing per acre. There are also cacti which may likewise be utilized.

The arid-land bee-keeper has many plants to his liking, for there are quite a number of valuable bee-plants in Mexico, South Africa, and Australia which I do not know enough about to mention. For example, the eucalypti are all honey-yielders, more or less; but as there are over 200 of them I may be excused from saying anything about them. Possibly one of your Australian readers who has a practical experience of them can. Australian acacias are also interesting to a bee-master.

A GLIMPSE INTO THE BEE-YARD OF EUGENE SECOR.

BY EUGENE SECOR.

The photo which I sent you was taken recently to preserve the beauty of a mock orange (*Philadelphus grandiflorus*) in full bloom. This particular clump has been paying back in annual installments large dividends upon its original cost and slight care. A photograph without color can not do it justice. It is one of the finest sights I ever saw. The blossoms are very large, but not quite so fragrant as the old-fashioned syringa that used to fill the air with fragrance in the yard of the old homestead in York State, where I was born and raised. But we had nothing so fine as this. Such wonderful improvements have been made in floriculture in the last fifty years that one can imagine he lives in fairyland.

On the left of the mock orange stand two or three caraganas (pea-tree). They are beautiful shrubs, blooming about the first of June, and are now full of pods filled with real peas—not edible, however, so far as I know. The foliage resembles that of a locust. They are hardy, and would make a good hedge-plant, growing only about ten feet high, and not sprouting from the roots.

Back of the mock orange stands a clump of dwarf Juneberry now in ripening fruit—a desirable shrub for ornament, blossoming early and furnishing a good deal of bird-food. The fruit, although resembling the blueberry in size, shape, and flavor, is not very appetizing, being too dry and hard.

This is only one very small corner of my grounds, and incidentally shows a few colonies of bees.

Forest City, Ia., July 3.

[Our older readers will remember Mr. Secor as the poet-laureate of beedom, and the efficient General Manager of the National Bee-keepers' Association for many years. Business and other matters claimed his attention, and he finally refused to run again, although pressed to do so by his friends.—Ed.]

A MOCK ORANGE IN BLOOM.—PHOTOGRAPHED BY EUGENE SECOR.

HANDY WHEELBARROW FOR BEE-YARDS.

Strong Testimony in Favor of the Hoffman Frame.

BY WARRINGTON SCOTT.

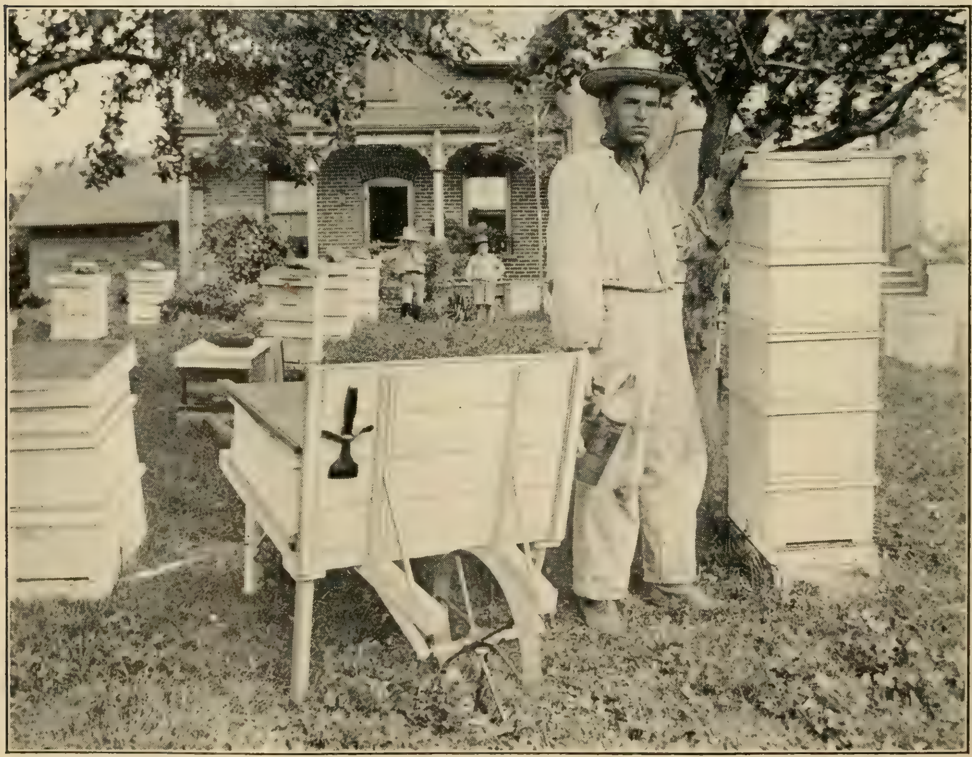
My wheelbarrow is built wide enough to hold two supers. The forward legs are constructed with springs, allowing them to slip over any obstacle they come in contact with. They are to prevent the wheelbarrow from upsetting, as I load on one side at a time and carry from two to four supers at a load, according to the weight of them. In putting on empty supers I carry six at a load.

The hive-tool shown is a scraper, used for scraping burr-combs from the under side of the honey-board or under cover, also cleaning any other part of the hive. I also have another tool which I use for prying supers apart and removing the follower from the hives.

I use the Hoffman frames. My follower is ¾ inch thick. There is a saw-cut nearly to the center, ½ inch wide and ⅜ deep. The above-mentioned tool has a hook at one end, used for catching in this saw-cut and lifting out the follower, which can be easily done after removing the wedge. I keep my frames wedged up tight at all times. I use staple spacers in the bottom ends of the follower.

I will add my testimony in favor of the Hoffman frame. I have used them for ten years, and prefer them to the ordinary frame, as they are easier to handle, and are always accurately spaced. I find far less burr-combs with this frame than with the ordinary frame, and they are always ready to be moved over any kind of roads fit to move bees on. In the fall of the year all that is needed is to screen the entrance, and the hive is ready. The cover telescopes down over the hive ⅞ inch, and rests on a cleat which goes clear around the hive. This makes a very tight cover. There is an under cover next to the frames, leaving a dead-air space, making shade-boards unnecessary. The outside cover is covered with galvanized iron, supported by wood ⅜ thick. The cleats, besides supporting the cover, make, in my estimation, the very best hand-hold that can be made. The above cover needs no weights to hold them in place. The stones shown in the photo were put on for another purpose. The outside cover is made ¼ inch larger than the hive. You will notice there are hand-holds in the cover, put in with a wabbling-saw. The cover being ¼ inch larger than the hive, it allows the cover to be removed with one hand. It can then be thrown on the ground upside down, and the super set on it while the hive is examined.

Wools, Ont., Can.



SCOTT'S BEE-HIVE WHEELBARROW AND APIARY.

HOW TO PROLONG YOUR LIFE.

Roat's Method of Fixing Cases, Lining, etc.

BY JAMES ROAT.

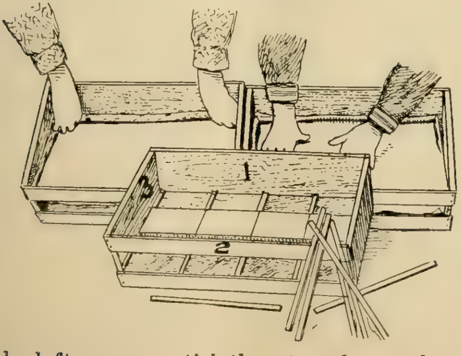
You will prick up your ears when you see the above heading, and I shall have interested readers as far as this, any way.

One of my professors used to say that any method by which you could save a minute would prolong your life by just that much. Now, in this article I propose to show some bee-keepers, at least, how to save, not minutes alone, but hours, and so prolong their uncertain existence.

During my 18 years' experience as a bee-keeper I have learned to do things faster and easier than I did at first, and in this article will try to show the A B C class how to make section-cases.

In the first place, unless you are a skilled mechanic and have a well-equipped planing-mill at your disposal, don't try to get out the stuff yourself. You will find it less vexatious, and in the long run cheaper, to buy of a dealer. Don't buy of the first man who comes along or because the price is lower than that of any one else, but go to the chap who has a reputation for selling *honest* goods at an *honest* price. Order early. Don't wait until you need the goods, but have them on hand. Make them up at odd spells, and then they are ready for the first of your honey crop and the early market. Having provided yourself with the materials, place a supply of each kind of boards and strips at the back of your work-bench. At your left (if you are right-handed) nail a shallow box 6 or 8 inches square, and put in a small handful of nails, scattered so that single nails may be easily picked up.

Next take a supply of pieces No. 1 and No. 2, and start the nails in the ends, where they will come in the finished case, allowing them to stick through about ⅛ inch. Then, taking No. 3 in your right hand and No. 1 in the left, you can stick them together so they will not slip while the nails are being driven.



The other end, front strips and bottom, are put on in the order named, the projecting nails holding the work in place until driven.

It used to take me about as long to put a paper tray into a case as it did to nail the case together; but this last season we hit on a plan that I have never seen in print, so I will try to give it, with the aid of the illustration.

Place the first finger of each hand 1¼ inches diagonally from two adjacent corners of the paper, and push those corners right into the corners of the case. Then, holding the paper in place with the right hand, place the left with outspread fingers in the center, and with the now released right smooth the paper from the center outward into the corners.

It's just fun to put in trays this way, but it used to make me mad all over, "wrastlin'" with the "ornery" things. If you nail in your cleats, spread 40 to 50 flat on the bench, and start two nails in each. Do not drive them quite through. Then drop five of them into your case, and place on top of them a board with a heavy mark where each of the three central cleats should go. Place a cleat under each mark, and at either end, and a rap on each nail with the end of the hammer-handle completes the job. Now don't get mad and say you knew all that long ago. Remember that some one has to teach the primer class, and getting mad is *not* the way to prolong your life.

Canandaigua, N. Y., March 6.

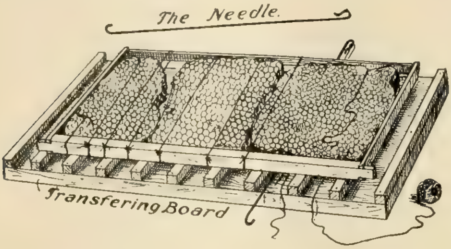
TRANSFERRING-TOOLS.

A Hook to be Used in Threading the String Around Pieces of Comb.

BY S. E. MILLER.

In this article I shall not attempt to go into the details of transferring, as the *modus operandi* is given in most of the text-books for bee-keepers. It is also a fact that, in most cases, the so-called short (or Heddon) method is preferable; but there are times and circumstances when we wish to do the work at once, and have it done with; and in such cases it is necessary to resort to the old methods of cutting the combs out of the old hive or box, and fitting them into frames. Any one who has had experience along this line knows what a job it is, and it is for the purpose of aiding in this work that I have devised a couple of tools which I consider a great help, and will here describe and illustrate:

Take a board ½ to ⅞ thick, and somewhat larger than your frame. Nail across it from six to ten cleats as long as the board is broad, and about ⅞ inch square. This I will call the transferring-board. The needle is made of about No. 11 or 12 smooth galvanized wire, and should be two to three inches longer than the depth of your frames. The eye of the needle is formed by bending one end around until it nearly touches, and then turning the extreme end slightly out from the main shaft or body of the needle. The other end is bent into a half-circle or ordinary hook. You will see that this gives us a self-threading needle with a hook where the point is on a common needle. The illustration will likely make it easier to understand than the description.



To use these tools, lay the board on something of a convenient height to work without bending your back too much. Have the cleated side up. Lay a frame on the board, and fit the combs into the frame. Now take the needle and a ball of common cotton twine, such as the merchants use in tying packages. Instead of threading the needle in the ordinary way, simply slip the eye of the needle over the twine. Now pass the needle between two of the cleats and under the comb and frame. Slip the needle off the thread and tie over or at one corner of the top-bar. Repeat this operation until the combs are securely tied in. Should any of the pieces of comb not reach clear down to the bottom-bar you can pass the twine through under, and then with the hook on the needle reach down between the bottom-bar and the lower edge of comb and pick up the twine; draw the end up and tie over the top-bar. This will hold such pieces of comb in place until fastened by the bees. It is also well to pass one or two strands clear around the bottom-bar and all when fastening in any such pieces, so as to keep them from swinging out to one side.

The advantage of these devices is that, after the combs or pieces of comb are fitted into the frame, one need not handle either comb or frame until they are securely tied in. Then tilt up the transferring-board —frame, comb, and all — and the frame is ready to hang in the new hive.

Now, I don't want the editor to say that it is much simpler and quicker to just wrap the twine around the frame and all several times. That plan would work all right if a fellow had about six hands to work with, so that he could use four hands to hold the various pieces of comb in place while he is wrapping the string around with the other two; but who has ever seen a man with six hands?

EXTRACTOR-BRAKE.

On page 487, May 1, you show an extractor-brake that costs only five cents. Here is one just about as cheap that is not open to the objection you make to the one devised by Mr. C. A. Butts, and referred to above, for it will not draw the crank-shaft out of line.

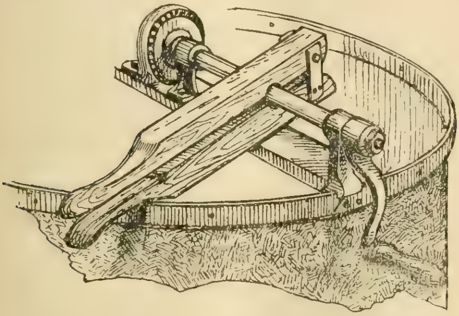
Queenstown,
"Ould Ireland."
June 13, 1905.

Sure, Sirr, an' this
be the verry cray-
ther that I'm
afther a'catchin'!
An' by Saint
Patrick I'll
'ave 'im or know
the rayson why!
Frank Benton

Megapis zonata
(Apis zonata)

SOUVENIR FROM IRELAND. SEE EDITORIAL.

Take two pieces of hard wood, 1¾×⅞, by 15 inches long. Four inches from one end cut out of the side of each piece about ⅓ of a circle, corresponding to the size of the crank-shaft of your extractor. Fasten these together at the ends, having the notches cut out, with two pieces of heavy tin or ordinary tin doubled in the following manner: Lay the two pieces down with the notches opposite, and about ⅛ inch apart. Lay one piece of tin over and one under, close to the end.

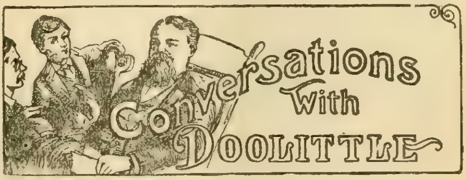


These pieces of tin should be about 1½ by 3½ inches. Drive two or three 1¼-inch nails through one piece of wood and both pieces of tin. Through the other piece drive a single heavy nail, and clinch all. This forms a kind of hinge which permits of opening and closing the jaws of the brake. Round off the outer side of one of the arms or handles to make a convenient place to lay the hand on. Now slip this over the crank-shaft, allowing the two notches to engage the shaft, and the outer end of the lower arm to rest on the rim of the extractor-can. Speed up the machine; and when you want to stop, simply lay your left hand on the top arm or handle of the brake, and bear down. This brake will act, no matter which way the shaft is turning. It is open to only one objection, and that is, it operates on the crank-shaft instead of the shaft that carries the reel, and thereby creates a certain strain on the gearing. This strain, however, is not serious if the brake is not applied too severely — that is, thrown on too suddenly. Have one of the men in your shop make one of these brakes, and try it on an extractor. I think you will decide it is a simple, cheap, and useful device.

Bluffton, Mo.

[Your ideas are good, but I still think it would be best to wind the string round and round the frame, for, in my opinion at least, it rarely pays to transfer small pieces of brood — better save time by throwing away the corners or small pieces. But, even if it were desirable to use the small pieces, I do not see why the string need be cut and tied at every turn. Why not unwind enough for a frame, and then, with the needle, thread the string round and round the comb in the way which you described, but drawing up the slack each time so that the "stitches" will be kept tight? Of course, when the weather is not so warm as to make the combs soft, no string at all is necessary if the cards of comb be cut so large as to fit the frame snugly.

After trying your brake for an extractor, I will say that it seems to be a complete success. For those who desire a brake on their two-frame extractors, I know of nothing better in the shape of a home-made device. It requires considerable pressure, however, owing to the comparatively small amount of friction surface; and it might be well, therefor, to make the upper stick a few inches longer than the lower one, so that the pressure may be applied by means of a foot treadle attached to it by means of a strap or rope. The hinge, as described, is hardly strong enough. I see no reason why the two pieces should ever be opened wide, and in my opinion, therefore, it would be better to nail the tin firmly to both pieces. Better still, use only one piece of tin, and nail it first on the top of the upper stick, carrying it down around the ends, and finally nail it on the bottom of the under stick. Or a quarter-inch hole might be bored through the two sticks, and a carriage-bolt used to hold the two ends together.—ED.]



Conversations With Doolittle

GRADING HONEY.

"Say, Doolittle, I am a beginner at bee-keeping, having secured my first section honey this year, and I want you to tell me just how to grade it so I can get the best price for it in the markets."

"I am glad to know that you are anxious to secure the best price for your honey, through a proper grading of the same, and otherwise. If all were thus anxious, much of the honey that now finds market in such shape that only ruinous prices are obtained, to the damaging of prices for that which is put up in good style by the enterprising apiarist, would not thus go upon the market, and the bee fraternity as a whole would be much better off."

"Thank you. But perhaps no credit should be given me, for it was only selfishness on my part that prompted the desire to put my honey up in the best shape possible, the reason being that I believed by so doing I could secure better returns to myself. I had not thought that such a course would help others in the bee business; but since you speak of the matter I am led to believe that even such selfishness as this might redound to the advantage of the whole."

"Certainly it would. But let us to your questions. What was it that you especially wished to know in this grading matter?"

"I want you to tell me just what to put

in for No. 1; what for No. 2, and what for No. 3, making all so plain that a beginner in apiculture need not fail to know how it is done."

"My plan of grading is to take a perfect section of white honey and set it up in a convenient place for a sample to work from, or to guide the eye, if you please; and all sections which come up to this one are classed as No. 1. But my usual way is to mark this grade of honey as XXX, as I like this better than the No. 1, as these X's are very easily placed in the hand-holes of the cases, so that, when a lot of cases are piled together with the ends toward you, or in any way so you can not see the 'face' side of the combs, they can be easily sorted."

"But you go too fast. What do you call XXX or No. 1 honey?"

"To be No. 1 the comb must be smoothly and evenly capped over throughout its entire surface, except, perhaps, a few cells bordering on the section, with little or no discoloration near the bottom of the section. The section itself must look new and clean, while no cells of bee-bread, or pollen, must be seen when looking through the honey toward the light."

"What! must it be as perfect as that?"

"That is the way I try to have it."

"Such honey would be 'fancy,' I should think."

"Yes, my XXX honey is always fancy."

"But you will not get very much such honey out of the whole year's crop, will you?"

"That depends very much upon the season. With a good season I have had fully three-fourths of my crop of white honey that would class XXX; while in poor seasons, when the nectar was secreted at intervals, and slowly at all times, if one-eighth of it classed as XXX it would do pretty well."

"I should have guessed that the one-eighth would have been the result, even in the best of seasons. But how about No. 2 honey?"

"A sample of this is set up to work from, the same as the No. 1, setting the same near the first, so that the eye can take in at a glance to which grade any sections belong that I may chance to pick up. This No. 2 I grade as XX, and it is to be the same as the XXX except that in it are put all sections with combs not too badly discolored near the bottom (so discolored by the bees traveling over them), together with sections which may have a few cells of pollen in them, the same being detected by holding the sections up to the light. And sections having a few unsealed cells of honey near the lower corners or other parts of their comb surface are also placed in this XX honey."

"That would be a grade of honey that would seem good enough for anybody; but I suppose it would not be profitable to put it in with the other?"

"No. The old way used to be to mix all the season's crop together, when crates were used holding 100 pounds or so; but with our small shipping-crates of the present it is more profitable to have the grade in each as nearly uniform as possible."

"What about the next grade, or No. 3?"

"In No. 3 or X grade, as I use it, I put all sections having unsealed cells to the amount of one-eighth of the comb surface, those that by accident or brace-combs have a small part of their surface marred; all such as have pollen in them to any extent, and all that are badly soiled or discolored by the travel of the bees, or by the bees working in wax from the old combs below in capping them. If I have any sections in which brood has been reared, or that are one-third unsealed, or are otherwise unfit to go in grade X, they are set away by themselves till enough for a crate has accumulated, when they are crated as No. 4, and marked by me as 0."

"Then you would not send to market under any grade sections which were less than one-third unsealed?"

"As a rule, sections that are less than one-third unsealed had better be extracted, or the honey fed to the bees, and the combs kept over till the next year, to be used as bait sections to entice the bees to rapid work earlier than they otherwise would."

"But don't you have any difficulty by getting things mixed in this sorting matter?"

"No, not at all."

"Explain a little more fully. Probably my head is a little thick."

"Having my sample sections set up I take a tray which will hold the number of sections which one of my shipping-crates or cases will hold, when I commence to take the sections from the supers. If XXX honey predominates I set each section of that grade on the tray, setting all others in the apartments made for XX, X, and 0. When I have enough on the tray for a case of XXX honey, I take the tray to the bench, stand, or table where it is to be cleaned, scraped, or prepared for the shipping case or crate, when, as each section is scraped and cleaned, the same is set in the shipping-case where it belongs. When all are in, and the case ready for market, I go to fill the tray again, sorting as before. In this way I keep on until there have accumulated enough sections of either of the lower grades to fill a case, when these are put on the tray, and a case of that kind of honey gotten ready for market. Does this make it plain?"

"Yes, enough so that I am willing to risk a trial of the matter. If I get into trouble you will see me again."

"All right. Come as often as I can be of help to you."

I note your mention of Walter Harmer feeding his bees liquid feed in the cellar. I have been feeding a part of my bees for four months in the cellar with liquid feed prepared in the way he mentions, and those that I fed came out fine; but those that I did not feed came out very weak.

Carlton, Minn. F. R. PALMER.

Heads of Grain
from different fields

FOUL BROOD IN TRANSFERRED COLONIES; THE WAY TO WINTER BEES.

I have one or two questions I should like to ask. I had a colony of bees in a box hive this spring, and I transferred them into one of your hives during fruit-bloom. I transferred enough comb to fill three frames and two frames of foundation—six frames in all. The larvæ hatched out of the combs that I transferred, and the queen began to lay eggs in the cells that were drawn out from the foundation; and the young larvæ, as they began to hatch, began dying, all the way from three days to the time they were capped over. Some died after being capped over. The combs looked ragged, the same as in the description in the A B C book, in regard to foul brood. The bees just about held their own. They had a very prolific queen that laid eggs in every empty cell, but did not gain any in strength. The larva, when dead, turned a dark cream color, and dried down to the lower cell-wall. Then the bees would remove it and the queen lay eggs to hatch and die. All bees seem to live after being hatched out once. Some dead larvæ had the stringy ropy condition, and some did not—a slight smell in the hive at first when opened, but I could not detect any toward the last, but the bees did not improve. I could not see any thing wrong with the combs when I transferred them to the frames.

If I have asked the question clearly enough, what was wrong with them? I watched closely to see that it did not spread to my other bees, and have not found any in the rest yet.

Could the disease have been in that foundation, as it started there first? As it is near robbing time here I closed the hive up tight, all but a small opening at the entrance the size of my smoker snout. After dark I lit my smoker, got the fire well to going, and put in a tablespoonful of sulphur, stuck the snout of my smoker to the entrance, and in about two minutes all was over with them.

Give me the best plan to winter bees on their summer stands. If you use a cushion over the frames, would you leave an empty super on? This is a poor locality for bees, although this year is above the average here, I believe. CHAS. W. RUSHER.

Hymera, Ind.

[It is not entirely clear from your description that you had foul brood. In transferring, one is very apt to chill the unsealed brood. If so, such brood will die, turn to a brown color, and look very much like foul brood. The only clew that gives me fear that you have the disease is where you say the bees cleaned out the dead matter, that the queen laid eggs, and that the larvæ from these eggs also died. You should have treated the colony, as a matter of precaution, by the McEvoy plan. Killing the bees with sulphur, and then burning the combs, would be all right. But there is no need of killing the bees; for if they be shaken on frames of foundation in clean hives, the disease will not reappear.—ED.]

SPACING EXTRACTING-FRAMES.

J. A. Green, in one of his articles, says the bee-keeper who does not practice wide spacing of his extracting-frames has yet to learn one of the first principles of producing extracted honey. Then says, later, "Space nine frames in a ten-frame super." Is that as far as he ever followed the principle of wide spacing? Wide spacing accomplishes three purposes. It takes less time to work a super; you have fewer combs to uncap and extract; and you have more wax, which *means more profit.*

Now I will make a statement. An apiary of ten-frame hives can be run with but seven combs to the super — seven frames to a ten-frame super, understand. Now, I do not mean to go and space every super to seven frames. The frames have to be spaced according to the strength of each individual colony, and also according to the honey-flow.

If the colony is weak the combs will have to be spaced close together, taking care to have them over the brood. If the colony becomes strong before extracting time, replace the combs wider; if none of the combs are being capped, insert uncapped combs between them. Do this at the time you go over the yard to do the swapping.

Now as to swapping, there are always strong and weak colonies in a yard. The stronger a colony is, the more work it is capable of doing. The extra-strong colonies are full some time before your yard as a whole is ready to be extracted, and your weak colonies have combs to spare. Take a wheelbarrow with a super of empty combs. As you go along lift the cover to each hive. When you come to one that is full, exchange some of the heaviest combs for the one on your wheelbarrow, reversing the process when you find a weak colony.

It takes but a very short time in this way to go over a yard of two or three hundred colonies; and by so doing you make your extracting as large as possible, and nothing is lost as would be the case if the strong colonies were not relieved.

I will further add that, to practice swapping, you must also practice wide spacing. When supers have their full number of frames you can not tell by a glance if the colony needs relieving, or exchange the frames as easily as where they are wide apart and comparatively loose.

Casanova, Cuba. LESLIE BURR.

SELLING COMB HONEY IN FRAMES OR LARGER SECTIONS.

I see in GLEANINGS, pages 587 and 596, a plea for larger packages of comb honey. I produce comb honey by using extracting-supers and shallow extracting-frames with starters. These weigh from 3½ to 5 lbs. when filled out, according to thickness of comb in a frame. This I sell at 15 cents a pound by the frame or frames. I weigh it before starting, and put the weight of each frame on the top-bar. Customers seem to appreciate that style of package, and I very seldom fail to make a sale to those who need honey, after I have held it up to the light to let them see the clearness.

I carry it to market in the supers by tacking a strip of wood half way down the ends of the supers with slots sawed out to hold eight frames to a ten-frame super. That keeps them from rubbing and breaking the cappings when some combs are thicker than others after grading. It also keeps them from sliding, which they would do after the first frame is taken out. All I see that is necessary to make a uniform comb is to have fences to hang between each frame to keep the bees from bulging them and making thicker combs on some frames than others. Doubtless supply manufacturers would make such a fence if there were a call for such. I should like to have some myself, but have not been able to find any in any of the catalogs.

Several bee-keepers have adopted that plan of marketing their honey since they have understood my plan of selling, and are getting a better price for their produce with less labor than formerly. L. L. GRASS.

Charlotte, N. C., June 17.

REPORT OF THE TOWNSEND PLAN; LARGE COMB-HONEY SECTIONS.

You ask for reports on the Townsend plan, page 598. I have been practicing this the past two seasons, with this difference: I do not extract, but sell these large frames which hold five or more pounds, as large sections. Honey generally sells here for 15 cts. per section, or two for 25 cts., customers knowing they do not hold a full pound, so they take this readily at 12½ cts. per pound. I find it makes no difference if placed in the center or on the sides, bees invariably enter them first. I make these large sections myself, but think it would be a good idea for the Root Co. to place them on the market. They should be the same width as other sections, four-piece, and might be dovetailed or nailed. I use the fence between them, but no bottom slats.

Ashland, Ore. W. W. ERB.

SELLING COMB HONEY IN SHALLOW FRAMES.

I want to tell you about my experience in selling comb honey in shallow frames. I use both shallow frames and sections on the same hive; get more honey, and have less swarming than I would if I should use sections only.

I sell honey about three or four hours three days in the week, and have sold in the past thirty days 1500 pounds in shallow frames direct to the consumer. I sell it a little cheaper than section honey, but have the advantage of getting each customer to take from three to four pounds at a time, when a great many would buy only one or two sections at a time; and I get most of the frames returned, and use them a second time.

I find that pieces of broken sections make splendid smoker fuel, and have the advantage of being right at hand, and ready to go into the smoker; and where a yard is run exclusively for comb honey the supply will be abundant. J. M. CUTTS.

Montgomery, Ala.

[For an answer to this question of a larger comb-honey package, see p. 814.—ED.]

KEEPING HIVES COVERED WITH SNOW IN WINTER; A HANDY TOOL-BOX.

I have kept bees only a few years, commencing with one colony. We have had 96 lbs. of comb honey from one colony in one year. Last year we made all extracted honey. We have wintered so far on summer stands packed in chaff with a board leaned over the entrance. We have snow most of the winter here; and at the commencement of cold storms or severe weather we shovel snow over the hives and open the entrance again when the weather is milder. We keep the broad covers of the chaff cases on the hives all summer. This gives double roof with broad shade.

We have a box for tools, something on the plan of a horse-shoer's box, high enough to be convenient. This has a receptacle for bits of comb; also a place for the short stout chisel to pry and scrape with, and the curved-end (tack-puller) frame-lifter; also a thin long-bladed knife for cutting comb. There is a block with bit-holes (upright) to hold a small sharp knife for clipping queens' wings; a pencil for records; matches, etc. There is also a place for the smoker and brush, queen-cages, etc. Thus I have all the tools in easy reach, and easy to move from one hive to another.

For record this year we are using pieces of thin planed board placed between the two roofs of the hive. When we wish to open hives two or more stories high we place common slat potato-crates right side up on the ground—one for each super, placing the supers across the top of the slats.

Pratts, Mich. O. W. CLARK.

THE ALEXANDER PLAN A SUCCESS.

I notice in your July 1st issue that one or two parties tried the Alexander plan and failed. Some time in the early part of May I divided four stands of bees per Alexander plan, and now have eight strong stands that are working in the supers. I am only an amateur in the bee business, but follow the *Review* and GLEANINGS pretty closely.

Denver, Col. E. C. CHISHOLM.

OUR HOMES,

BY A. I. ROOT.

OUT OF THE JAIL AND INTO THE PRAYER-MEETING.

O thou of little faith! wherefore didst thou doubt? —MATT. 14:31.

If I am correct, there is at present a reform going on in the matter of enforcing law all over our land; and may God be praised for this reform; for the disregard of law has been getting to be one of our most serious dangers. The crowds that engage in lynching, and taking the law into their own hands, plead as an excuse that our laws are enforced with such half-heartedness, or not enforced at all, that, if the criminal is not punished by lynch law, he is not punished at all. Another thing, our good President has been trying hard to put down this matter of thieving in public places; and a string of great and good men throughout our land have been bringing about a great reform in the way of more carefully investigating and enforcing a strict observance of law. This wave of righteous indignation against all kinds of outlawry has been getting into even our small towns. Here in Medina the editor of one of our county papers came out recently with such a protest against illicit liquor-selling and other irregularities that our officers have been using the "drag-net," to use an expression we frequently hear of in the cities. As a consequence our county jail has had a new accession of inmates. A few weeks ago my sister said one Sunday afternoon:

"Amos, there are something like half a dozen people, mostly young men, at present in our jail. I know it has been some years since you visited the prisoners when we had any; but now as your health seems pretty good, and there is an unusual number confined there, don't you think it would be well for you to call around and see them?"

I do not remember what answer I made; but I had had the matter in mind for some time, and my conscience had been pricking me. I could easily answer my *sister*, who has been all her life prominent in W. C. T. U. work; but I felt at once that the answer must be given to *God*. The beloved Savior, years ago, bade me go out "into all the world and preach the gospel."

Perhaps I had better explain why I have of late dropped jail work. Our older readers will remember these Home papers once had considerable to do with the prisoners in our county jail. It is now nineteen years since saloons were banished from our village of Medina. After their banishment our jail was empty the greater part of the time. For a time I used to make inquiries every Sunday afternoon; but my health failed. I went to California, Florida, the Bermudas, and other places, and I somehow got out of the habit of visiting the jail, even when I knew there were prisoners there. But the real and the greatest reason was that I had lost faith. When I first began prison work it was one of the happy surprises of my life when a young man who had already been to the penitentiary once, and was on the way there the second time for the same offense, was, through God's grace, brought out of jail and taken to the prayer-meeting. In my enthusiasm at the time I began to believe that, if Christian people—that is, those who had faith and tact for such work, would go into our jails in the *right spirit*, the prisoners and criminals of the whole wide world might be emancipated out of jail and taken to the prayer-meeting.

For a time God seemed to give me great victories; but when some of my converts went back after a little time, I lost heart. Another thing, when I found nothing but tramps in the jail I lost faith and courage. Satan apparently succeeded in convincing me that it was not worth while to waste time and breath on tramps. I do not know but I had gotten too exalted an idea of the value of that same "breath." I remember one of my last experiences in jail work. A tramp was kept there for some reason for several weeks. I tried to stir up some spark of manhood in him by way of remonstrance. Said I in substance:

"John, you admit you have been traveling all over our land begging your way, although you are big and stout, and able to work. You have been going to the farmers' homes, right in harvest time, and begging the kind women for bread and butter, not to speak of cake and pie. This is true, is it, John?"

He nodded his head, even if he did not say yes, and I went on.

"John, you have seen these poor hard-working women stop their work, leaving, perhaps, a crying or sick baby. You have accepted from their hands something to eat when you knew they were overworked, and, perhaps (with a large family of children), not having sufficient sleep. Some of these same women are wives of men who have mortgages on their farms, and *they* are overworked too, and in debt; and yet you, a big strong man, were willing to accept charity of these people while you refused to go to work and earn your living like other people. Have you no scruples of conscience and no *manhood* about you to make you feel ashamed to live in this way? You are big and strong, and yet your only excuse is that you do not like to work."

In spite of every thing I could do or say along this line, John said he did not care. It did not trouble *him* any, and he was not going to work hard for anybody if he could help it. I then told him if he preserved that attitude of heart and mind he ought to starve, and I got the sheriff to put him to work, and he made him work until he ran away to find some better place to ply his old trade.

Well, about that time I decided I was getting to be too old for jail work, and that it was not worth while, anyhow. Satan (of course) helped me in my decision.

Now, dear reader, let me jump forward to the present month, July, 1905. We might as well begin with the *4th* of the month. It will sound more patriotic, you know. After I got home I told Mrs. Root that God had called me to go to Nineveh, and, like Jonah of old, I did not want to go. She replied something like this:

"If God calls you, I think that, unlike Jonah, you *will* go. But how do you know he calls you?"

I related the circumstances, and told her that it would lie heavily on my conscience until I responded. Of course I could say "it is too hot weather for such work, and I am getting to be rather old;" that it was well enough for me in my prime, but nobody expects me to do such work now.

My friend, when you are talking to some friend of yours, or even to your wife, you can hunt up reasonable excuses for not doing certain things; but when God calls, and that all-seeing eye is over you and all around you, what folly to try to excuse yourself!

I knew from past experience (I am ashamed to confess it) that I should have but little peace or enjoyment until I responded to God's call. I went into the jail and found quite a good-sized class there, as I expected. As I had had years of experience in this work, it was not hard for me to read a part of a chapter, start a gospel hymn, and close with prayer. My talk I made personal so far as I could make it. I asked each one whose fault it was that they were in jail during this beautiful summer weather — whether it was the fault of our laws, the fault of somebody else, or their own personal fault. We had quite a friendly talk all around. But I did not feel very much faith I had accomplished any thing of any account until I was just about to leave. A boy in his teens beckoned me off to one side. He said he came from Pennsylvania. He was something of a bee-keeper and knew The A. I. Root Co., and something of my life personally. This he explained briefly, and said that he had just been brought to jail for stealing a ride on a freight train. His companion denied being on the train when they came to a stopping-place; but he replied that *he* was going to tell the truth, even if it got him into trouble; and he was in jail when, perhaps, by denying the offense as his companion did, it would have let him go free. He was under a sentence of 30 days and a fine of $10. He said if I would advance the money for his fine he would work for me harder than he had ever worked for anybody else—in short, that he would do *any* thing in the world to get out of that place and go where he could get some honest work.

As I had heard many such promises during the years past, and some of them were not kept, I confess I did not have very much faith; but I made up my mind that, if the sheriff thought best, I would give him a chance to go to work. My sympathies were strongly enlisted; but I had learned by experience not to trust too fully to my sympathies or emotions. Our sheriff is a very good man—one who is not easily humbugged, but one who, at the same time, loves righteousness and hates iniquity. I was pained and surprised to learn from him that this boy's record was not very good. He said the boy had a very bad temper; that he did not hesitate to use bad language when provoked; furthermore, that he had grown up without schooling, and could hardly read or write his own name; and, finally, that he would be out very soon any way, and then I could give him a chance if I saw fit. As I had made no promise I let the matter drop. I expected to make another visit the following Sunday; but a thunderstorm hindered me at the usual hour, and I had an appointment Sunday evening out of town. To tell the truth, I rather forgot that I had promised Ransom (his name is Ransom Murray) that I would look into the matter; but some time during the week, about ten days after I first saw Ransom, a boy came up where I was at work, and seemed surprised that I did not remember him. With some reluctance he confessed he had just come out of jail, and I presume he felt a little hurt that I did not remember him nor my talk with him. He expressed a readiness to go to work at any thing I wanted done, and also added that he would try hard to be faithful.

Dear friends, I have been setting boys at work through much of my busy life. I have seen lots of them start out with good-natured enthusiasm; but I do not know that I ever saw a boy before who tried as hard to please as Ransom did. *He* was one of my "happy surprises;" and yet when I talked with him there in the jail I had but little faith in him. I have quoted that beautiful little verse a good many times, right on these pages; but all at once it began to shine out with new and wonderful meaning. It was the Savior's inquiry to poor halting stumbling Peter when Peter started to walk on the water in response to the Master's call —"O thou of little faith! wherefore didst thou doubt?"

Dear friends, the beloved Master would speak these words to us all along through life if we would but listen to them, and then go forward trusting him.

After Ransom had been at work three or four days, Mrs. Root wanted to know if he could not find a few raspberries down in the lot. The grandchildren said there were none worth picking; but she thought some older person might find enough for a pie. Ransom had already begun to make himself a favorite with the women-folks, as he was so ready to beat rugs or carpets, or do any sort of work about the house. He took a big tin pan and started for the berries. After he had been gone an hour or more I went down through the orchard but could not find him anywhere. I inquired of others who worked around there, but no one had seen him.

At this point Satan began to whisper, "There you are, old chap. Your new boy has probably boarded a freight train and gone back to his old tricks, What did I tell you?"

I still insisted that Ransom was all right, although I could not find him anywhere among the berries nor explain where he had gone. I wonder if it may not do him a little good if I now confess how badly I felt at even the thought that he had broken his good record and gone away. After I had given him up (I am ashamed to say it) he came around with a heaping panful of berries. His face was covered with sweat, showing he had been hard at work. He had got down into a channel we have cut to let "Champion Brook" go straight through our land, and found berries where nobody else would take the trouble to go for them. He told Mrs. Root that was not all, and got a little pailful besides, later on.

After I had become a little acquainted I began questioning him about the sheriff's report. He owned up that he got ugly in jail; but he said if I knew the provocation he had, he thought I would at least partly excuse him. He said his temper got up, and he did use bad language, as the sheriff said; and he explained his lack of education something like this:

"Mr. Root, my father and mother quarreled when I was only three years old, then they decided to separate and put their children out wherever anybody would take them. The man who took me evidently decided to make me pay my way. He gave me very little schooling, and that reluctantly. As a rule he would let me go to school one day and then keep me out two because the work was pressing. I never went regularly. The teacher and I, somehow, did not agree. Perhaps it was a good deal my fault, but I did not see it so then, and the teacher pronounced me no good. The man I worked for said if I was no good in school I was worth a little something on the farm. So I worked on the farm until I could not stand his treatment any longer. If I stayed till I was 21 he was to give me a certain sum of money. It seemed to me he wanted me to leave so he would not be obliged to pay this money. I got in with a show, and learned to swear. When I got all the 'show' business I could stand I ran away from it and tried to get to Fostoria, O., where an uncle of mine lives. My money gave out when I was within a hundred miles of Fostoria, and the boy who was with me said we could steal a ride on the freight, without harming anybody. Now you know it all. I can read enough so I saw your name on the building and the word 'Office' over the door. If you will just keep me at work I will do any thing in the world you want done, and I will try to learn to read."

A little later on, that same day, he asked me if there was not a Thursday-evening prayer-meeting somewhere. I told him there was; and without any invitation from me he expressed a desire to go. At the close of the prayer-meeting, as our subject was lack of faith, or half-heartedness in doing the Lord's work, I briefly told Ransom's story, and asked those present to extend the right hand of fellowship to our young friend who was then present, and who, notwithstanding my lack of faith, was, in almost one short week, emancipated out of the jail and into a prayer-meeting.

As a matter of course, Ransom attends church, and is in my Sunday-school class. During the week I noticed he seemed to have something on his mind, and finally he spoke something like this:

"Mr. Root, you were kind enough to ask me into your class. Now, I am willing to do any thing in the world to turn over a new leaf, and be a different boy; but you know how it is about my reading. Do you think it would be any thing wrong if you were to pick me out a verse in the lesson and let me study on it between now and Sunday so I can read it reasonably well when my turn comes in the class? I do not believe in any sort of deception—that is, I don't now. I want to be fair and square; but you see I shall not only have to study a good deal, and practice reading that one verse, but you would have to manage it so the verse would come to me. If you think there would be any thing wrong in so doing, I would not think of it."

Now, friends, there is a problem for some of you older Christians—some of you who can not only read and write, but perhaps have been through college. How many are there who are as conscientious in regard to little matters of every-day life as my young friend Ransom was?

Of course, I do not *know* that this boy will hold out. This story that I am telling, that most of his shopmates will read, may make it harder for him, but I hope not. May the Holy Spirit guide him in his earnest and honest efforts to walk henceforth in the straight and narrow path that leads not only out of jail and into the prayer-meeting, but also leads out of *darkness of every kind* into the light that leads from earth to heaven. May God forgive me for my want of faith when he called me to take a part of my Sunday afternoon and go into our county jail and hold up the gospel of Christ Jesus to our erring brothers who have got into trouble. Perhaps more than one of them may have been as little at fault in reality as was our friend Ransom.

THE EQUITABLE, AND OTHER INSURANCE COMPANIES.

For some time past I have been feeling that I ought to help spread a warning in regard to insurance companies. The Chicago *Advance* has, however, put it in so much better shape than I could do that I take the liberty of quoting from that paper:

> The country has been shocked at the wanton extravagance, boodling, and grafting methods of the Equitable Assurance Society. To use a phrase of the streets, the society had money to burn, and it burnt it. Officials were voted salaries twice as large as that of the President of the United States. Directors put their hands in up to the elbows. The great and supposedly good

Chauncey Depew was given $20,000 a year just to smile. The Equitable was better than a gold-mine. It made Alaska look small to the men on the "ground floor."

But who furnished the money? The people. But why do the people pour their money in such a hopper? This we can not answer. All we can say is that a multitude of people are built that way. They dump money into certain classes of institutions until those in charge hardly know what to do with it. And it is not strange that the flood carries them into all manner of extravagances and vicious schemes. Hundreds and hundreds of millions have gone out of the pockets of the people into great aggregations of capital. It is bad for the country. The enormous aggregations of capital are used to set up combinations which are arrayed against the interests of the people.

We have heard much about a better distribution of capital. The people could do much toward this better distribution by keeping their money out of these big aggregations and using it in business over which they have some control. Some of it might even be used to pay overdue grocery bills, rents, etc.

But so long as the money is forthcoming there will be men to enrich themselves with enormous salaries and to indulge in unlimited luxuries.

There you have it, friends. And now I want to add that many good men deprive themselves of what is really their due, and perhaps burden themselves with debt, only to leave to their wives and children money that will do them harm instead of good. I know all that is to be said on the other side of the question; but there are extremes both ways; and the one of leaving money to your children that they did not earn for themselves as you did, I think is perhaps the worse of the two extremes. Every boy and girl nowadays, with average health, can earn all the money necessary to spend; and after it is earned they will know how to take care of it; and I think there are some widows to whom the same reasoning may apply. The only advantage it is, is in case you should die suddenly and unexpectedly. Of course, there are cases where an honest man will get his life insured in order to protect his good name in case of sudden death.

OUR GOD-FEARING GOVERNORS.

I suppose our friends outside of Ohio are aware that Mr. Pattison is the Democratic nominee for Governor, against Myron T. Herrick on the other side. Of course, the friends of Herrick, Cox, and other political bosses are doing their best to pick flaws in the character of Mr. Pattison; but it seems his past record is so good that they can not find any better way to kill him politically than showing he is "puritanical." Here is what the *American Issue* has to say about it:

> The *Wine and Spirit News* of July 5 has for its leading editorial a bitter attack on Governor Hanley, of Indiana; Folk, of Missouri; and Hoch, of Kansas, for what it calls "butting into the private affairs of municipalities," by which it means keeping saloons closed on sabbath, according to State laws and according to their own oaths of office.

See the following from the *Wine and Spirit News* of July 5:

> Do the people of Ohio want any thing like that? We hardly think so; and yet who knows what will happen, especially when the Anti-saloon League is able to induce the Democratic party to nominate its own candidate—a candidate whose first pronunciamento is a declaration that he stands for a Christian sabbath, which means a Peter Cartwright Methodist sabbath, with base ball tabooed, and all human joy perpetually stifled on the first day of the week. The people of Ohio should be allowed to decide for themselves how they wish to spend Sunday. It is not for an orthodox class to determine it for them. If they want base ball, excursions, and places to amuse, and entertain and instruct themselves on the first day of the week, they should have what they want; and no governor, be his name Pattison or any other name, should be allowed to dictate to them on a matter so sacred.

One is almost tempted to pity the *Wine and Spirit News*, for the editor did not even seem to dream he had paid Pattison one of the highest compliments that could be given any candidate. Such statements will help elect him. Give the calf enough rope and he will hang himself may, perhaps, apply here.

We quote further from the *American Issue* as follows:

> The people of Ohio now have the objection to this official liquor organ of the State to Mr. Pattison. He has defended the Christian sabbath in the legislature.
>
> On the other hand, if the attack on Mr. Pattison means any thing, it means that Governor Herrick stands for what the Democratic nominee does not. Mr. Pattison stands for sabbath protection; Governor Herrick does not. Or why should Pattison be thus venomously assailed, and Governor Herrick be continually spoken of in terms of support and praise by this liquor paper?
>
> We ask the Christian voters of Ohio to study well the significance of this latest liquor utterance.

BOGUS COMB HONEY.

Our good friend Aunt Harriet, in the *Farm Journal* for July, corrects her mistake in regard to manufactured comb honey as follows :

> Just one more reference to the statement about adulterated honey and artificial comb. As I neither eat nor buy honey, I based my opinion on newspaper reports, magazine articles, and the complaints of those who try to buy good honey. Wm. A. Selser's article, "The Honey-bee," in the May number, will enlighten the consumers; the producers know the truth; and to all who read my mistake, I offer my sincere apologies.

God speed the *Farm Journal.*

HEALTH NOTES
BY
A. I. ROOT

KILLING TWO BIRDS WITH ONE STONE.

They are big birds too, dear friends. I was going to call it a discovery, but it is not very new, and the two *birds* are not very new either; but I tell you they are important ones. I have talked to you over and over about the overtasked mothers—the mothers who are obliged to get up in the morning before anybody else, and get a good square meal for the lords of creation and a family of children besides. Yes, these mothers can have hired girls—some of them can; but there are many mothers who do not want any hired girl around to add to their cares and perplexities. It is these mothers I am trying to help; and as Mrs. Root is one of them you need not be surprised if I show considerable zeal in the matter; for Mrs. Root is still (in my opinion, mind you) one of God's jewels. Perhaps I should not have put that sentence in marks of parenthesis; and if anybody objects to that parenthesis he can read as if it were not there. Well, now, I have by my "discovery" helped Mrs. Root a great deal, and brought smiles to her face that were worth a lot of sacrifice. And this is one of the birds I have killed.

The other bird was my old chronic trouble of indigestion. For years past my strength and energy gave out before dinner-time. If my dinner happens to be late—no, I do not scold, but Mrs. Root knows by my looks that I am suffering. Well, the stone that killed the two birds relieved Mrs. Root, and cured my "goneness" say half an hour before dinner-time or more. It came about in this way:

I told her, when the hot weather came on, she should stop cooking breakfast; and finally I declared I would not eat the breakfast, even if she did cook it. We had a package of what they call "Hardy food," a sample of which was left on our doorstep. It costs only ten cents a package, and it is sold at all groceries. Well, I got a good-sized bowl and filled it to the brim with these flakes of Hardy food, poured on some milk, and ate my breakfast. Then I watched and waited with much anxiety to see how my strength would hold out compared with the way it did with a good square meal—beefsteak, potatoes, hot cakes, maple syrup, and the usual bill of fare that we get at a hotel. Of course, we do not have a bill of fare at our home; but for years and years past we have thought it necessary to have some kind of meat, besides potatoes and other accessories. Well, I was interested in my work that day, and I thought I would keep on working until I played out. And here came one of my biggest and happiest surprises. *I did not play out at all.* When the whistle blew for dinner I was driving nails, and I felt as if I should prefer to keep right on driving, for I didn't feel faint nor hungry at all.

Now, somebody may say, "A. I. Root, the old chap himself, has been *hired* to puff a special breakfast food." Not much. After the package of Hardy food was gone I took the same ration in "Maple Flakes" instead of Hardy food. Then I tried Force and similar articles put up by the Battle Creek folks. They all answer the same purpose. I can not see any difference. Dry bread or zwieback is, perhaps, *about* the same; but I had used zwieback and milk so long I was a little tired of it. Now, do not be in a hurry to say, "That diet is all right for *you*, but might not answer as well for one in a hundred." That theory will not go down; for in talking the matter up I find that many people are enjoying better health on just such a light breakfast, especially in hot weather. You see this is almost in line with Huber's hobby of no breakfast at all; and it is also pretty nearly in line with the Cuban fashion of having no breakfast until ten or eleven. At present Mrs. Root is giving us a good square meal for dinner; but my impression is the noonday meal could be cut down in variety a great deal, helping the women-folks by lessening their work and bettering the general health of individuals by not asking the digestive apparatus to handle a lot of different kinds of food.

I hope my good friends in Oberlin, the Root family I have been speaking of, will excuse me if I mention a little incident. At breakfast-time the whole good-sized family were served with oatmeal and milk, or some breakfast food something like oatmeal. I do not remember what it was, and it does not matter. As they gave me a pretty good ration I concluded that was, perhaps, all the breakfast they had. I was admiring their good sense; but when they began to take the plates away and to bring in some eggs on toast I laughingly made a protest, telling them that I had had all the breakfast that was good for me. Then Mr. and Mrs. Root exchanged glances and began to smile, and finally admitted they had got on to my discovery that a light vegetarian meal in the morning is better for students, professional men, or anybody else, and that the only reason why they had a little something extra that particular morning was because they had a visitor.

Now, I want to say right here that, when a visitor comes to your home, and can not put up with the regular every-day fare, he had better stay away. When I come to see you, please do not make any difference in your bill of fare on my account. Bro. Terry and some of my vegetarian friends will say that, if I would only get into the way of eating daily three such meals as I eat in the morning, or, better still, only two, it would be a greater improvement. This may be true, but I am not yet ready to subscribe to it.

Now, friends, this is an exceedingly important matter. By the way, Mrs. Root has objected all along to this, and felt worried because she was afraid I would run down on such a breakfast. But finally she said, "And just think of the *years* I have fussed to cook meat and other things every morning, when, as you now declare, there was no need of it, and that we all would have been *better off* without it!"

Now, friends, just try it in your own home; and for the sake of the dear wife, if for nothing else, try to be a little self-sacrificing; and if you come out in the end with better health, then you can rejoice with me.

Before closing I wish to beg pardon of the good friends who have been to the trouble of providing fresh meat when they knew I was coming, because of what they have read about the beefsteak diet. Indeed, a change of diet is often a great benefit; and very likely a change to a meat diet may be a great benefit in many cases; but my impression is, a simpler diet with less variety would do almost as well.

A few days ago I heard of an agent for some kind of theological work who went to the minister of the parish and informed him he would like to lodge and board in the house for two weeks. Then he went on to say that he was under the doctor's care, and would have to have fresh lean meat at every meal; and the minister's wife, of course, put up with it uncomplainingly. Now, I think such chaps should be "fired" out of the front door promptly, even if they have D.D. or LL.D tacked to their names. May be you think I am irreverent; but I am sure a reform is needed, especially in this matter of invading a minister's home.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can hnve the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfactien arising from these "swaps."

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. Reeves, Perch River, N. Y.

WANTED.—A hundred healthy worker brood-combs—Hoffman frame. State price.
H. A. Ross, Evansville, Ind.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. Hyatt, Shenandoah, Iowa.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. Swan, Centralia, Kansas.

WANTED.—To exchange fine untested Italian queens for bee-supplies or offers. See ad. this issue.
S. F. Trego, Swedona, Ill.

WANTED.—To exchange Barnes combination saw, almost good as new, for best alfalfa honey—comb or extracted. W. W. McNeal, Wheelersburg, O.

WANTED.—To buy colonies of bees. State price and condition.
F. H. Farmer,
182 Friend St., Boston, Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—500 colonies bees to run on shares in Southwest Texas, that great honey country; personal attention.
H. H. Hyde,
111 4th St., San Antonio, Texas.

WANTED.—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.
H. F. Hagen, 1632 Blake St., Denver, Col.

WANTED. — Honey in any quantity. State price, quantity, and quality.
Judson Heard,
110 South Forsyth St., Atlanta, Ga.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes.
H. E. Crowther, No. Kingsville, Ohio.

WANTED.—Every bee-keeper to act as subscription agent for the *Rural Bee-keeper* at the coming State and county fairs. Write for particulars.
W. H. Putnam, River Falls, Wis.

WANTED.—To correspond with parties in New England States or elsewhere where there are prospects of a large crop of winter apples. Also a good typewriter for sale or exchange for honey.
F. W. Dean, New Milford, Pa.

Addresses Wanted.

WANTED.—The name and address of those anywhere in the U. S. who expect to buy honey in carload and less than carload lots during 1905.
St. Croix Valley Honey-producers' Association,
Glenwood, Wis.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

Help Wanted.

WANTED.—A bee-keeper to take charge of two bee-ranches on shares. A good proposition for right man. Leslie Burr, Casanova, Havana, Cuba.

Situations Wanted.

WANTED.—Young man wants situation with a bee-keeper. No liquor or tobacco habit. References.
Geo. C. Trimpe, 15 Bellevue St., W. Covington, Ky.

For Sale.

For Sale.—Leather-colored Italian queens, 50 cts. each. H. A. Ross, Evansville, Ind.

For Sale.—White-clover comb and extracted honey; new crop. R. S. Chapin, Marion, Mich.

For Sale.—House apiary with 38 colonies. For particulars write Mrs. Kelley, Holloway, Mich.

For Sale.—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. Jno. M. Wheeler, Winchester, Ky.

For Sale.—Full colonies of leather-colored Italian bees at $4.00 per colony.
F. A. Gray, Redwood Falls, Minn.

For Sale.—During July, 50 mismated queens at 30c, and 50 old tested queens at 50c.
B. F. Averill, Howardsville, Va.

For Sale.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. Hyatt, Shenandoah, Page Co., Iowa.

For Sale.—The busy man's method of rearing the best queens; saves brood, time, and patience; rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere.
E. H. Dewey, Great Barrington, Mass.

For Sale.—Italian and red-clover queens; untested, 60c each; $6 00 per dozen. Safe arrival guaranteed.
R. O. Cox, Fort Deposit, Ala.

For Sale.—About 4000 lbs. fine extracted clover and basswood honey in 60-lb. cans. Sample and prices free.
W. H. Townsend, Hubbardston, Mich.

For Sale.—Second-hand 60-lb. cans. Guaranteed to please at 35 or 40 cts. per case of two cans each.
A. G. Woodman, Grand Rapids, Mich.

For Sale.—One hundred colonies bees in one of the best North Michigan raspberry localities. They are in Hilton Hives, and o. k. Price $3.50 per colony before Aug. 25. Clinton F. Pulsifer, Nessen City, Mich

For Sale.—Have 150 two-story eight-frame hives; many new, dovetailed, two coats oil paint, Italians and hybrids, in good condition, no foul brood, can be shipped. Make an offer pure on whole lot. Must be sold.
G. P. Howell, 6101 Dauphin St., New Orleans, La.

FOR SALE.—Cheap, 70 colonies Italian bees in Danz. and Root hives; mostly ten frames for comb honey, 4x5 sections. No time to give them proper attention is the reason for selling. R. E. PITTMAN, Grifton, N. C.

FOR SALE.—150 colonies bees. I will put them up in a light case with three frames of brood, queen, and all the bees from a full hive, for $2 00 each; L. frames; excellent stock. J. N. McCOLM, Plymouth, Wis.

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them. N. O. PENNY, Vero, Indian River, Florida.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once.
HILDRETH & SEGELKEN,
82-84 Murray St., New York City.

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Take no such chances.
Stick to the old reliable.
WILLIAMS' SHAVING SOAP
Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."
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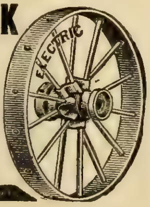

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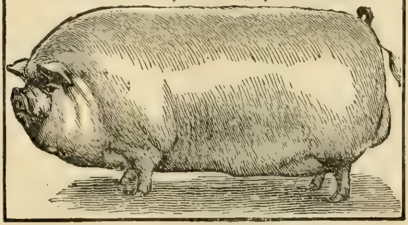
Holsteins will average 1000 to 1200 pounds of butter a year. They are an excellent breed for dairymen and cheese makers. Realizing the popularity and value of these cattle *Blooded Stock*—that hustling stock paper—will give up its August issue to Holsteins.
Blooded Stock
for August will contain a complete history of this breed; telling of their Dutch origin; their value as milkers, butter producers, cheese makers, etc. W. J. Gillett heads the list of contributors.
The September number will be devoted to Yorkshire hogs. Subscribe now! 25c a year. Anybody can afford 25c.
Blooded Stock, Box 218, Oxford, Pa.



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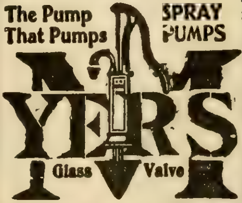

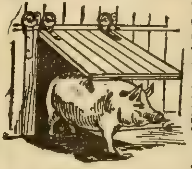

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with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
F. E. MYERS & BRO.
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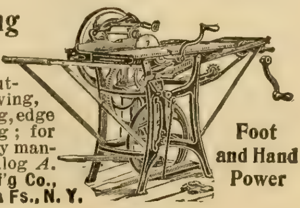

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For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog A.
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Golden or Leather Colored Italian, the best that money can buy anywhere.

THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

Queens Go by Return Mail.

Prices after July 1	1	6	12
Select queens......................	$ 75	$4 00	$7 00
Tested queens......................	1 00	5 00	9 00
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Breeders..........................	3 00	15 00	.....
Straight five-band breeders.......	5 00	.....	.....
Two-comb nuclei, no queen........	2 25	12 00	22 00
Full colonies on eight frames......	5 00	25 00	.....

Quirin-the-Queen-Breeder, Bellevue, Ohio.

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Partner selecting a queen. If you want the full particulars send for their circular, giving a description of their fine northern-bred . . .

Italian Queens.

If you want honey-gatherers you need look no further. . We are now ready to send out .˙ .˙

Choice Breeders.

DOOLITTLE & CLARK, Borodino, Onon. Co., N. Y.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg, Va.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer, Ventura, Calif.

Queens

California

A TRIAL

of my strain of Italians will convince you of their merit Prompt shipment. Fine queens. No disease. Absolute satisfaction—or money back. What more can you ask? Untested, 75c; 6, $4.00; 12, $7.00.

S. F. TRECO, - Swedona, Ill.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. **W. T. Crawford, Hineston, La.**

PRICES OF QUEENS	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO, TEX.

Carniolans a Specialty ! !

ALSO breeders of Golden and Leather Italians. One untested queen, 75c.; six for $3.90; twelve for $6.00. Tested, $1.25. Best breeder, $2.50. Best imported, $4.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free. :-: :-: :-:

Carniolans.—We have bred this race of bees for 20 years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co., - Lake George, N. Y.

We have ready for mailing a large stock of both

Tested and Untested Italian Queens

Either three or five banded queens. Specially bred for their honey-gathering qualities. Price, for tested, $1.00 each, $10.00 per dozen; untested, 60c each, $6.00 per dozen. ::: ::: ::: ::: :::

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J. B. CASE, Port Orange, Fla.

Select Imported Carniolan Queens, $4.00.

I have a limited number of choice imported Carniolan queens. I shall be in Carniola during July making these shipments which will be distributed from Washington, D. C. Write for rates for three or more.

Ralph Benton, 925 N Street, Northwest,
WASHINGTON, D. C.

Special Offer

Will sell select tested red-clover queens at $1.00 each, six for $5.00. My bees work on red clover.

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Choice queens..............75c each.
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Red-clover : and : Italian : Queens

Average untested, 65c; two for $1.00. Select untested, 75c. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

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RED-CLOVER AND ITALIAN QUEENS

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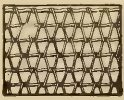
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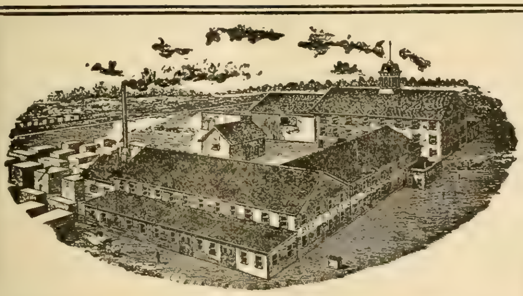

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Abundance of goods ready for prompt shipment. Orders received in forenoon shipped same day.

Lewis' Goods in Indianapolis at Factory Prices----Cat. free.

Fine Italian Queens
from our yard here in the city as follows: Untested, 75c; select untested, $1.00; tested, $1.00; select tested, $2.00.

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SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danzy., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

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Hoosier-Italian Queens---By Return Mail.

Untested Queen	$ 75
Select Untested Queen	1 00
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Select Tested Queen	2 00
Select Breeding Queen	5 00
Best Imported Queen	5 00
Fair Imported Queen	3 00

Underwood, Ind., July 1, 1905.

Walter S. Pouder, Indianapolis, Ind.

Dear Sir:—I want to tell you about the queen you sent me recently. She beats all the queens I ever "seen or heard tell of." I placed her with a lazy swarm of black bees and she did make them hump. In 14 days she left the hive full of brood, and she now has three combs of brood in another hive. I told you she was like my other queens, but she is worth a dozen of them. I looked in her old hive to-day, and her bees are hatching by the thousand, and the finest bees I ever saw. Some of them are pure yellow, and big fellows too. You may book me for several next spring. You could not get her back for five times her cost. Raleigh Thompson.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

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The price of beeswax is ruling so low we have decided to reduce the price of comb foundation 2 cents a pound right through the list, making the price of one pound at the present five pound rate; five pounds at the present ten pound rate, etc. All our dealers and other manufacturers, so far as we are aware, make a similar reduction. The reduced price takes effect from this date.

Convention Notices.

The Missouri State Bee-keepers' Association will meet in Sedalia, Aug. 22, 23. The opening session will be at 2:30 P. M., Aug. 22. The room for us to meet in will be named later. Louis A. Osborn, of that place, has kindly consented to act as host, and will direct us to a place of meeting and to accommodations. Good hotel accommodation can be had at $1.00 to $2 00 a day; private boarding, cheaper. Hon. Geo. B. Ellis, Secretary Agricultural Department, will be there to give us a talk and lend us a helping hand. The State fair, to be in session there at the same time, will cause cut railroad rates to be obtained from all parts of the State. The State Live-stock Association, also meeting there the 24th, will give us some inspiration. Let us turn out and make an extra effort. W. T. CARY, Sec.

Wakenda, Mo., July 11.

THE NATIONAL CONVENTION TO MEET IN SAN ANTONIO, OCTOBER 28 TO NOVEMBER 1.

The International Fair holds its annual exhibition in San Antonio, Texas, Oct. 28 to Nov. 1. When this fair is in progress there are very low rates in force on the railroads out for 600 or 700 miles. Then there are harvest excursions from the North on the second and fourth Tuesdays of the month. The fourth Tuesday in October comes on the 24th. Considering these facts, it has been decided to select Saturday, Oct. 28, as bee-keepers' day at the fair. This will give ample time for members from the North to reach the city by starting the 24th. The regular sessions of the convention will begin Monday, Oct. 30, *and continue three days.*

The Fair Association has designated Saturday, Oct. 28, as bee-keepers' day, and will so advertise it, and especial pains will be taken to have on exhibition hives, honey, wax, bees, and other apiarian products. At this fair will be on exhibition all of the agricultural and other products of the South and Mexico, and a visit to it will really be worth all the trip will cost, to give one an idea of the South and her products.

Then the Texas members propose to give a genuine Mexican supper, which will be free to all outside members. There will be Mexican band and toast-making—in short, it might be called a banquet. On Sunday the members can attend church, or go on a trolley-ride around the city. Side trips to Uvalde and other places are planned for all who wish to see the country after the convention is over, bee-keepers at the various honey-centers having promised to take the bee-keepers around free of charge. Texas is one of the greatest, if not *the* greatest, of honey-producing States in the Union, and bee-keepers will now have an opportunity to see her wonderful resources, enjoy the hospitalities of her people, and profit by meeting in convention, all at very small cost.

The headquarters of the National Association will be at the Bexar Hotel (pronounced Baer, long sound of a), corner of Houston and Jefferson Sts., and rates are only $1 00 a day, and up. The convention will be held at Elks' Hall, 125 W. Commerce St., only two blocks from the Bexar Hotel.

Every thing is now arranged except the program, and I wish that every one would write and make suggestions in regard to topics and men to discuss them. If you have no special topic that you wish put into the program, you must surely have some question that you would like brought before the convention. Pour in the suggestions and queries, and let me get up one of the best programs that we have ever had.

W. Z. HUTCHINSON, Secretary.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

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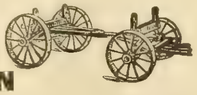

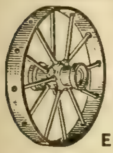

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Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight. **The Bee & Honey Company, Beeville, Bee Co., Texas.**

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

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Untested, each.....$ .75; ½ doz., $4.25; doz., $8.00
Warranted, each....1.00; " 5.00; " 9.00
Tested, each........ 1.25; Select tested, each 1.50

A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

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Queens that are Queens

My Adel strain of Golden Italians are a wonder. They gather honey from every honey-producing flower, and are practically non-swarmers. The queens quickly fill ten L. frames with brood, winter in fine condition, and rapidly build up in spring. Testimonials of their good work, with an eight-page leaflet on queen-rearing, free. Best breeding queens, $1.00; half dozen, $5.50; dozen, $10.00. Every trade more than satisfactory. I have the most valuable strain of bees in the world.

Henry Alley, Wenham, Mass.

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.
BROKEN UP AT LAST

The severe dearth of honey and pollen has been broken up by a fine flow of honey, and we are again rearing queens from our Superior Golden and Leather Italians; also, Gray Carniolan stock. :: ::
Untested, 75c; six for $4.00; twelve for $7.00.
Tested, $1.00; Select, $2.00; Best, $5.00.
Send for circular. **T. S. HALL, Jasper, Pickens Co., Ga.**

PURE = ITALIAN = QUEENS

Highest award at St. Louis, 1904.

Anthony Biaggi,
Pedevilla, - near Bellinzona, - Italian Switzerland.

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MOORE'S - STRAIN - OF - ITALIANS

becomes greater each year; the following report shows the reason why:

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B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never in my thirty years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel any thing I have ever had." ::: ::: :::

I am now filling orders by return mail and shall probably be able to do so until the close of the season.

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.00 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free. :: ::

J. P. MOORE, MORGAN, PENDLETON CO., KY.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be a very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, 60c each; six for $3.30, 12 for $6.00. Free circular.

L. H. Robey, Worthington, W. Va.

AN - OPEN - LETTER

. . . . . The queens I purchased of you last fall have proven to be the *best* I ever owned, both for gentleness and good honey-gathering qualities. Some have given three supers of sections, other colonies only one (my old stock). You certainly deserve credit for breeding up such a strain. I have had queens from several of the *leading* queen-breeders, but yours are by far the leaders.
Philadelphia, Pa., July 5, 1905. John P. Tull.

This is one of our many pleased customers. Are you one? If not, give our Italian queens a trial. You will not be disappointed. Untested, 50c; $6.00 per dozen; tested, $1.00.

J. W. K. SHAW & COMPANY
Loreauville, Iberia Parish, Louisiana.

WE CARRY A FULL LINE OF

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from Select Stock

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BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

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SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

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Select Untested Queens -	1.00
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It excels. We guarantee satisfaction. . . . .

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Bee - supplies
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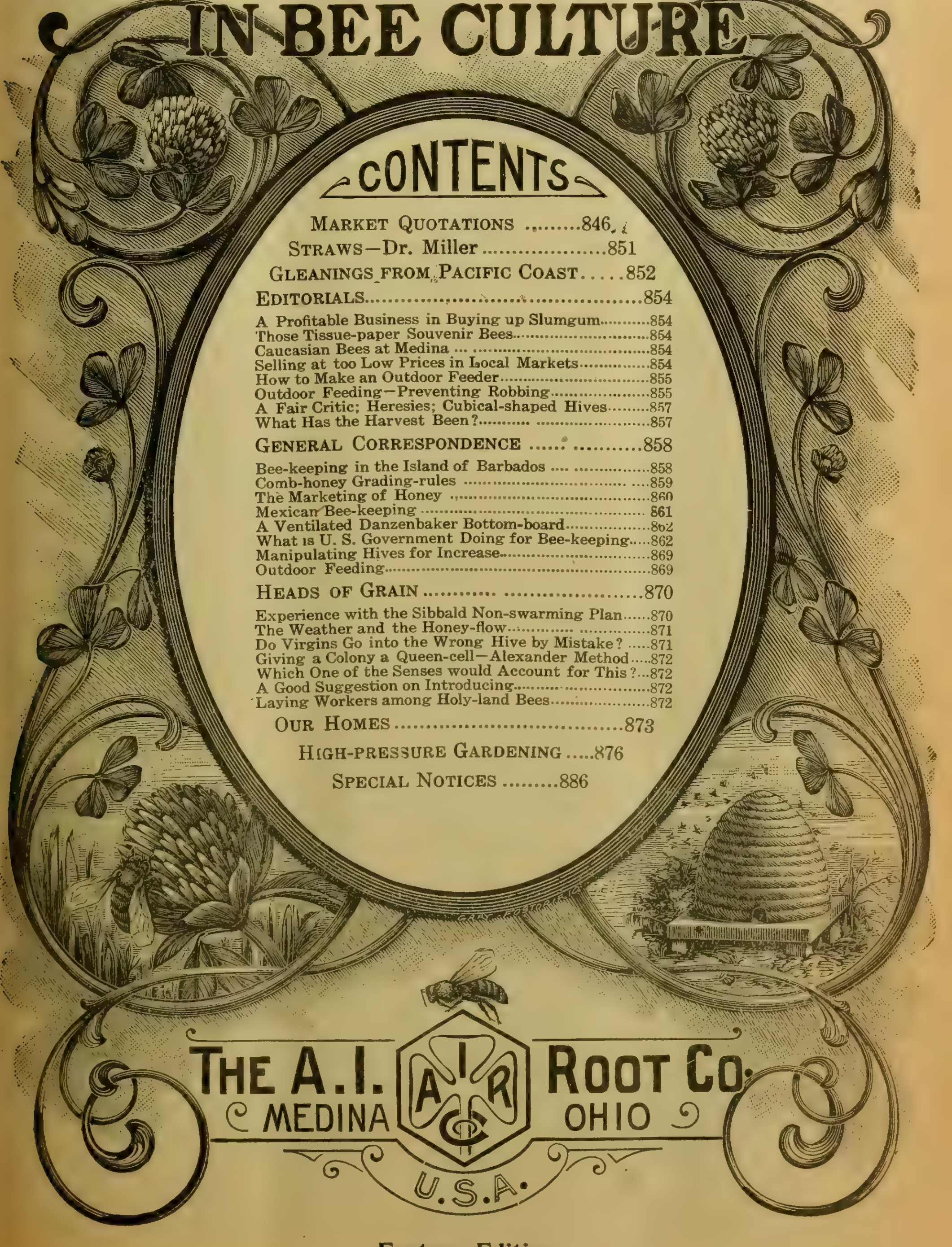
BEESWAX WANTED AT ALL TIMES

* * *

DADANT & SONS, Hamilton, Ill.

Volume XXXIII AUGUST 15, 1905 Number 16

GLEANINGS IN BEE CULTURE



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MEDINA OHIO
U.S.A.

Eastern Edition

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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders. .˙ .˙ .˙ .˙

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from Select Stock

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It can be had in Michigan of M. H. Hunt & Son, and with it "the extra pains" in packing carefully and shipping promptly.

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you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; will be mailed promptly, free of charge.

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled. Each variety bred in separate apiaries, from select mothers; have proved their qualities as great honey-gatherers. -:- -:- -:- -:-

Golden Italians.

Have no superior, and few equals. Untested 75c; six for $4.00.

Red-Clover Queens,

Which left all records behind in honey-gathering. Untested 75c; six for $4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested 75c; six for $4.00.

C. H. W. WEBER,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Ave.

Cincinnati, = Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Milwaukee.—Continued dullness characterizes this market for honey, and the left-over stock of the old crop does not move out very rapidly; yet we think it may meet a more urgent demand before the new crop is gathered. There has been more inquiry of late about and for honey, and new-crop stock will meet buyers as soon as it comes in, and think early shipments will sell, as the thought of something new prevails as ever. We continue to quote on old stock, and new may bring a little better prices if fancy quality. A No. 1 sections, 11@12. Extracted white in barrels, kegs, cans, and pails, 6½@7½; amber, same, 6@6½. Beeswax, 28@30.

A. V. Bishop & Co.,
Aug. 8. 119 Buffalo St., Milwaukee, Wis.

Cincinnati.—At this writing there is a good demand for extracted honey, and shipments are arriving daily. New comb honey is coming in quite freely, although the demand is only fair, a condition which may be expected early in the season. We quote amber extracted, in barrels and cans, at 5¾ and 6½ respectively; white clover, 7@8½. Fancy white comb, 12@15. Beeswax, wanted at 26.

The Fred W. Muth Co.,
Aug. 2. 51 Walnut St., Cincinnati, Ohio.

Toledo.—The market on comb honey remains very quiet as yet on account of the fruit season, and the new honey as yet has not commenced to come in. We look for the receipts to increase by the latter part of this week. Fancy comb honey will bring 14@15; No. 1, 13@14; little demand for amber. Extracted white clover, in barrels, 6@6¼; in cans, 6½@7; amber, in barrels, 5@5¼; in cans, the same. Beeswax, 26@28.

Aug. 8. Griggs Brothers, Toledo, Ohio.

Schenectady.—Have received a few consignments of white honey, both comb and extracted, of excellent quality, but owing to the hot weather of the past week there has been but little demand. From present indications we think prices will range from 12 to 15 for comb and 6 to 7 for extracted. Bee-keepers in this section report favorable conditions for a good yield from buckwheat.

Chas. McCulloch,
Aug. 10. Schenectady, N. Y.

St. Louis.—The honey-market we quote as follows: No. 1 white-clover comb, 10@11; amber, 8½@9½; inferior, broken, dark, etc., less. Choice extracted, in barrels, 4@4½; in cans, 5@5½, inferior, less Beeswax, prime, 28; impure and inferior, less.

R. Hartmann & Co.,
Aug. 8. 14 So. Second St., St. Louis, Mo.

Cincinnati.—There is no demand for comb honey, on account of the warm weather. Extracted is in usual demand for this season of the year. We quote white clover, 7@8; amber, in barrels, 5¼@5½—in cans, 5¾@6. Beeswax, 28.

C. H. W. Weber,
Aug. 8. 2146-8 Central Ave., Cincinnati, O.

Philadelphia.—Some honey arriving, with prospects of a good crop all through the East; but no call for comb honey during the hot weather, so that prices are not as yet established. Extracted honey is arriving freely, and is selling as follows: Fancy white, 7@8; amber, 6@7. Beeswax, 27. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Aug. 7. 10 Vine St., Philadelphia, Pa.

Albany.—Honey demand is beginning some now, and, although too early for a heavy demand, some new attractive lots sell at 14@15 cts. for white comb. The prospect seems to be of a large crop. If so, these prices will seem high later on.

Mac Dougal & Co.,
July 29. Albany, N. Y.

Kansas City.—The receipts of new comb honey are light, and demand good. No new extracted in the market. We quote fancy 24-section cases, $2.75, No. 1, $2.50. Extracted white, 6@6½; amber, 5@5½. beeswax, 25@28.

C. C. Clemons & Co.,
Aug. 8. Kansas City, Mo.

Chicago.—We quote fancy white comb 14; No. 1, 13@13½; fancy amber, 11@12; No. 1, 9@10; fancy dark, 10. Extracted white, 6@7; amber, 5@6; dark, 5@5½. The new crop is appearing, and selling in a fair way considering that it is midsummer time. Beeswax, 28.

R. A. Burnett & Co.,
Aug. 4. 199 South Water St., Chicago, Ill.

Denver.—This market is practically cleaned up of old comb honey now. We have received a few cases of new-crop fancy stock which brought $3.00 per case of 24 sections, and could place more at the same price if we had it. Extracted, 6½@7½. Beeswax, good yellow stock, 25.

Colorado Honey-producers' Ass'n,
Aug. 9. Denver, Colo.

For Sale.—Our 1905 crop of honey will be ready for the market about August 1. 2000 lbs. of No. 1 comb in 4x5 plain sections; 16,000 lbs. white clover and raspberry extracted for table use; 60-lb. cans of clover at 8c, in new cans; raspberry at 7½c a pound, f. o. b. car. A new feature this year is our system of grading, so nothing but the very choicest extracted is sold for table use. No honey extracted before July 20. All sealed before extracting. A specialist can produce the best if he tries; we try—we have tried for 30 years. A sample

STANDARD BRED QUEENS.
BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS
By Return Mail. Safe Arrival Guaranteed.

PRICES	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9.00
Tested	1.50	8.00	15.00
Select Tested	2.00	10.00	18.00

Select Breeders, each $3.00
Two-frame Nucleus and Red Clover Queen 3.00

THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

hat we furnish free to intending purchasers will tell you how we have succeeded. If you are looking for "cheap John" goods don't write to Remus.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—10,000 lbs. comb honey. Can deliver July and August crop in September at 11 cts., f. o. b. in New York or 8 cts. in Havana; all fancy and A No. 1 white, in carriers of 170 lbs. net; nine cases to carrier, 24 sections to case. FRANK REIMAN, Nueva Paz, Cuba.

FOR SALE.—Choice extracted white-clover honey, new crop, in new 60-lb. cans. Sample, 5c.
G. A. BLEECH, Jerome, Mich.

FOR SALE.—New clover honey in 60-lb. cans.
C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.

FOR SALE.—Fine new extracted clover honey in 60-lb. square cans. C. G. LUFT, Forest, Ohio.

FOR SALE.—7000 lbs. new clover honey in 60-lb. cans; sample free. JAS. MCNEILL, Hudson, N. Y.

FOR SALE.—Comb and extracted white-clover honey; also full colony Italian bees. Please write.
F. M. MAYBERRY, Obelisk, Pa.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—12,000 lbs. new clover honey, comb and extracted; latter in five-gallon cans, one and five pound pails, and glass jars. State your wants, and we will quote a price that is right.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—Honey in any quantity. State price, quantity, and quality. Address JUDSON HEARD,
110 South Forsyth St., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St. New York.

WANTED.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. UDO TOEPPERWEIN, San Antonio, Texas.

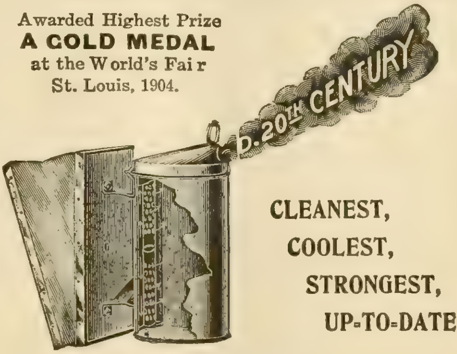
WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ills.

WANTED.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
THOS. C. STANLEY & SON,
Manzanola, Colo., and Fairfield, Ill.

WANTED.—We are in the market for buckwheat honey, both comb and extracted. When writing be sure to tell how it is put up, mentioning the grade; if comb, No. 1 or fancy; and send sample if it is extracted. We do not want it mixed with other flavors.
THE A. I. ROOT CO., Medina, Ohio.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

F. DANZENBAKER, - MEDINA, OHIO.

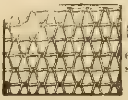
A NUMBER OF TIPS!!

Each of which has saved or gained me one dollar, is the talk of one of a series of articles by Dudley B. Truman, of Breezy Hill, Nassan, Bahamas, B. W. I., now running in the RURAL BEE-KEEPER, published at River Falls, Wis. Mr. Truman writes under the caption

HIVE MANIPULATIONS

In the July issue Mr. Truman gives six tips, each of which has saved or gained for him one dollar. The price of the RURAL BEE-KEEPER is but $1.00 for the twelve numbers, and one article tells how you can save or gain $6.00. There are 24 to 28 pages each issue—all valuable to bee-keepers; clubbed with GLEANINGS, $1.50.

W. H. Putnam, River Falls, Wis.



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COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana.

FOR SALE.—Bees, honey, land, and timber.
THO. WORTHINGTON, Leota, Miss.

To Make a Success

of keeping bees in large numbers has been the leading theme of the Bee-keepers' Review for this year. Each issue contains one or more articles on this subject from men who have made great successes in this line; and these men are from widely scattered localities, from Vermont to California, and from Cuba and Texas to Minnesota. If you are at all interested in making your business grow until it brings you in thousands of dollars a year, send ten cents for three late but different issues of the Review, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

FAIRS

Why not make the fairs you attend profitable as well as instructive? Make a good honey exhibit and secure awards. Then use your time to advantage soliciting subscriptions to GLEANINGS IN BEE CULTURE. GLEANINGS makes very liberal inducements in regular commissions besides large cash prizes. This matter is worth looking into. ∴ ∴ ∴ ∴ ∴ ∴ ∴ ∴

County - and - State - Fair - Contest
Prizes : : : : : $10, $5, $3, $2

To induce bee-keepers generally to enter our Fair Contest we make the following very liberal prizes over and above the regular commissions earned. For the party sending the largest list of subscribers, $10; for the second largest, $5; for third largest list, $3; for the fourth largest list, $2. Subject to the following

CONDITIONS

First.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

Second.—That to win any cash prize the contestant must have to get at least 5 yearly subscriptions or equivalents.

Third.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Fourth.—That contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

Fifth.—That subscriptions can be sent in any time, but must be plainly marked "For Fair Contest."

Sixth.—That only one agent will be appointed for any one fair.

Seventh.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE

Date.................................

GLEANINGS IN BEE CULTURE, Medina, Ohio:
Fair Contest Department.

Please send agents' terms and enter my name as contestant in Fair Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

Date of Fair...................... *Name* ....

Name of Fair .... *P. O*..

I can use........*sample copies of Gleanings.* *State*....................

ITALIAN QUEENS

By RETURN MAIL.

The Standard-bred kind. Untested, 75c each; 3 for $2.10; 6 for $4.00. They give satisfaction. Here are some unsolicited testimonials from those who have had our queens.

What They Say of Our Queens.

George W. York & Co.:—The two queens received of you some time ago are fine. They are good breeders, and the workers are showing up fine. I introduced them among black bees, and the bees are nearly yellow now, and are doing good work.
Nemaha Co., Ks., July 15, 1905. A. W. SWAN.

George W. York & Co:—After importing queens for fifteen years you have sent me the best. She keeps 9½ Langstroth frames fully occupied to date, and, although I kept the hive well contracted, to force them to swarm, they have never built a queen-cell, and will put up 100 lbs. of honey if the flow lasts this week. CHAS. MITCHELL.
Ontario, Canada, July 22, 1905.

George W. York & Co.:—The queen I bought of you has proven a good one, and has given me some of my best colonies. N. P. OGLESBY.
Washington Co., Va., July 22, 1905.

George W. York & Co.:—The queen I received of you a few days ago came through o. k, and I want to say that she is a beauty. I immediately introduced her into a colony which had been queenless for twenty days. She was accepted by them, and has gone to work nicely. I am highly pleased with her and your promptness in filling my order. My father, who is an old bee-keeper, pronounced her very fine. You will hear from me again when I am in need of something in the bee line
Marion Co., Ill., July 13. E. E. McCOLM.

Some Special Offers.—A queen and the WEEKLY AMERICAN BEE JOURNAL, a whole year, for only $1.50; or the queen, BEE JOURNAL, and GLEANINGS—all three—for only $2.25.

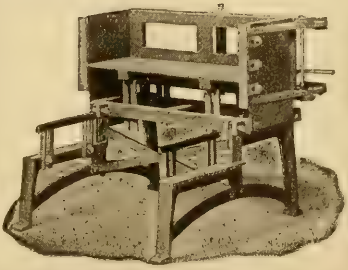
How to Sell and Ship Honey.—The AMERICAN BEE JOURNAL for Aug. 3 is a DOUBLE NUMBER (32 large pages) and illustrated. A strong feature consists of several experiences on selling and shipping honey. This alone is well worth a FULL DOLLAR to any bee-keeper right now. Then there are the usual departments, besides some ten pages of the Chicago-Northwestern Convension Report. It is all a feast of good things. Send ten cents for the August 3d copy with four others of late date. Or better still, send $1.00 for a year's subscription; or $1.50 for a queen and the BEE JOURNAL a year. Sample regular copy free for the asking. Address

George W. York & Co.,
334 Dearborn St., - Chicago, Illinois.

These Blocks

were made on one of our $50 concrete building-block machines. Prices range from $50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement makes from 25 to 35 blocks. Write for descriptive circular and list.

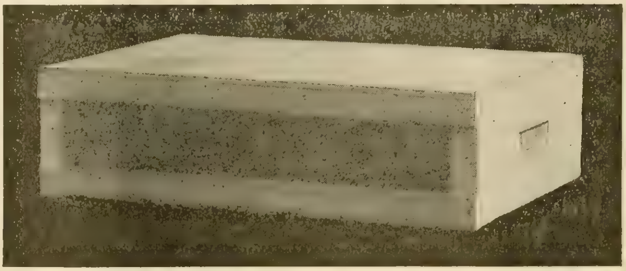
Medina Concrete Company
Medina, Ohio



Be sure of the last step

In producing your honey, which is the purchase of shipping-cases and other honey-packages. ☙ ☙ ☙ ☙

INSIST ON LEWIS' GOODS.



Your honey put up in good shape will bring higher prices, and the demand for it will be increased from year to year. This factory's reliable goods have started many a man on the road to success. -:- -:- -:- -:- -:-

LEWIS
WATERTOWN,
U.S.A.

G.B. Lewis Co., Watertown, Wis.

☙ ☙ Bee-keepers' Supplies. ☙ ☙

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

Published by THE A. I. ROOT CO.
$1.00 PER YEAR MEDINA, OHIO

Vol. XXXIII. AUGUST 15, 1905. No. 16

Stray Straws

By Dr. C. C. Miller.

Eight feet 2½ inches high. That's how high a stalk of sweet clover has grown just north of the house.

C. E. Woodward is less worried, if possible, than I am, as to the disappearance of basswood lumber. He says in *Review:* "I have never yet seen a one-piece section that I considered worth putting the foundation into. The four-piece section, made from white poplar, is the only first-class section on the market." Thanks, Bro. Woodward.

A swarm issued from No. 18. I said, "That's strange; the queen is caged in No. 18; are they swarming with the queen in the cage?" But I found a clipped queen on the ground in front of the hive. Then I said, "How could that queen get out of the cage?" Looking in the hive I found the cage all right and the queen still in it. A queen from some other colony had evidently entered, and agreed to elope with the colony. Precisely the same thing occurred at No. 60, and on the same day. Bees are queer. [This only emphasizes what I have said elsewhere, that queens sometimes make mistakes by going into the wrong hive.—Ed.]

C. H. Dibbern thinks from my Straw, p. 755, that I think his trap a failure. That's where you're out, friend Dibbern. The work of the trap was to catch that queen, and it caught her. The regular thing would have been to hive the swarm, and the trap had the queen caught all right for that. But I didn't want to hive the swarm. All I wanted of the trap was to tell me the colony had swarmed. It did that, saving me the trouble of looking for queen-cells every ten days up to the time the colony swarmed. I left the colony till it was convenient for me to have a controversy with it about the matter of swarming; and I suppose in most cases the queen would have remained in the trap.

For once I wish I hadn't put on so many supers. It will be all right if clover takes a fresh spurt, but otherwise there will be an undesirable number of unfinished sections. Yet the promise was so great, and the cut-off so sudden, that I hardly blame myself. Suspect I'd do the same thing again under like conditions. [At one of our outyards I put in a lot of frames of foundation to give the bees room, and now I wish I hadn't. The honey-flow that seemed to be so strong was followed by chilly weather, and especially by cool nights. Some of the brood chilled. In other years these nuclei would have suffered from want of room, with precisely the same conditions that made it seem necessary to put in foundation this year.—Ed.]

Replying to your queries, p. 805, Mr. Editor, this season is better than last in this locality, and better than the average season. Nothing like so good, however, as it promised. Up to July 20 it was great; then suddenly robbers began to trouble, although plenty of clover bloom was in sight. Gradually the whiteness of clover faded out, although there was no drouth. But it has brightened up again, and Aug. 7 there is a fine show of clover. Whether the bees get any thing from it remains to be seen; but, like a genuine bee-keeper, I'm hoping.

Twelve hours later.—Been to work at the bees since writing the foregoing, and there's no question about the fresh start. No trouble from robbers, and "honey shakes"—that is, when you shake the bees off a comb a flood of nectar flies out. [This is the kind of reports we have been getting from other bee-keepers. It looks decidedly as if there would be belated crops in many sections, when, early in the season, it was estimated they would be without honey.—Ed.]

"The Sunday closing law has finally triumphed in Missouri. St. Louis police put the lid on good and tight in St. Louis Co. yesterday."—Chicago daily, Aug. 7.—"That's nothing to do with bee-keeping?" Yes, it has. If all the saloons of the land were closed on Sunday, it would mean many a taste of honey in poor families whose heads now spend much of their earnings at the Sunday saloon. [The wave of reform is starting in various cities, and not a few thanks are due to that great good man, Gov. Folk, for starting reform in St. Louis, even if he did veto the foul-brood bill of the bee-keepers. Just now there is a growing feeling against bossism and boss rule in Ohio. The bosses have had control of this State for many years; and the good people are now looking to see if they can not emancipate themselves from the rule of boss Cox, of Cincinnati. We are looking with anxious eyes on the verdict of next November.—Ed.]

Rev. J. G. Baumgaertner is puzzled. Editor Root, page 643, preaches strongly the doctrine of warm supers. A Straw, p. 756, estimates the gain more than the loss when a currant of air is allowed to pass through the hive by having "an opening at top at back end of hive." How to reconcile the two. Don't need reconciling, Bro. B.; they are two separate things, both good. One is warm supers, the other is a well-ventilated brood-chamber. Please understand that I don't ventilate by shoving forward the cover, for that would cool the supers as well as the brood-nest. The ventilation is made by shoving forward the lowest super. There is loss from that in cooling off the row of sections next the opening, making the work there slower, and a gain in cooling the brood-nest; and I believe the gain greater than the loss. I even up matters sometimes by changing the super end for end after work has started in it, but it doesn't make as even work in the super as without the ventilation.

Ye editor thinks I have no good proof to sustain my fears that so much caging of cells and queens may have bad results. I thought I had some such proof in former days, but lately the proofs seem to be going against my notions. By accident I left two virgins caged 16 days. Instead of killing them at once, I thought I'd see how they would turn out, so uncaged them. Five days later I found them laying finely. It seems to me that, if they had proper ideas of self-respect, they ought to have laid very sparingly, if at all. With many misgivings I've been trying the dual plan of introducing virgins; and, so far from getting any clear proofs that it's all wrong, I'm afraid I'll have to own up that it's a fine thing. [We have been working the dual plan for two seasons now, and for the last month we have been practicing it in baby nuclei with entire success. A virgin queen more than one day old usually requires on the average, in our experience, about four days of caging before the bees will accept her. If my theory is correct (that scent is the controlling factor in the matter), then if we put two queens in at the same time, they can both be acquiring that same scent. When the plan is carried out in its entirety it virtually takes only two days to get actual results, although as a matter of fact the queen has been acquiring the scent, or whatever it is, for four days.—Ed.]

I want to endorse some of A. I. Root's notions about making extra work for the women, especially in the matter of cooking. It's outrageous the amount of extra work they do by way of getting up extra dishes to tempt us to eat more than is good for us. Almost any physician will say that, if the variety of dishes were cut in two, and the amount of food we gobble also bisected, we'd be a healthier and a happier people. Then the dishwashing—I confess to the weakness of having an uncomfortable feeling when three teaspoons are put at my plate when only one is needed. Generally, though, I use only the one. Keep it up, Bro. Root. [Once for a week or so, when my wife was without help and she herself was not very well, I was asked to help wipe the dishes after the evening meal. It was not long before I began to ask the question, "Why not get along with one plate, one spoon, and one knife and fork? What is the use of having a great big butter and bone dish? What is the use of having an extra pie-dish?" And so I went on. I had never thought of these things until I had to wipe the dishes. It makes a great deal of difference whose ox is gored, especially if that ox is the *pater familias*.—Ed.]

GLEANINGS FROM THE PACIFIC COAST.

By Prof. A. J. Cook. Pomona College, Cal.

SAGE HONEY.

A subscriber from La Crescenta, California, sends a little friendly criticism of my article in Gleanings for June 15. He says that they have thousands of acres of white sage which, at the date of his writing, June 30, were in full bloom and were being visited by the bees. He hopes that the present year will be a good one, but adds that the white sage is not much to be depended upon. He comments upon the excellence of both black and white sage honey. The black sage, he says, never fails them if the rains are abundant. He says that bee-keepers in his vicinity are of the opinion that black sage furnishes ten pounds of honey to white sage's one, although there is a good deal more white sage than black in his neighborhood. He voices the general experience of Southern California in the statement that because of the cool cloudy weather in May and June the bees did but little work. Up to the time of the date of his letter, June 30, he had an average of fifty pounds per colony and was hoping much from the white sage, which was attracting the bees in great numbers at that time. I think Mr. S.'s valuation of the sages is not exceptional. I know Mr. Harbison always gave black sage much higher valuation than he did white. I have known many others of like opinion. I think one reason, perhaps, for this comes from the fact that the white sage is more partial to the lower ground, while the black sage pushes up into the canyons and thus is likely to find moisture, while possibly the white sage lacks this necessary adjunct for honey secretion. Is it not possible then that both of these plants, with suitable weather and soil conditions, will yield invariably an abundance of honey, though in case of scant rainfall the white will fail utterly, while the black may give a fairly good harvest simply because it grows in a region where moisture is sufficient to insure nectar secretion? Were I to locate an apiary in Southern California, I should wish to find both these plants in profusion, and for reasons given above; as also from the fact of its longer period of bloom I should prefer to have the white sage omitted rather than the black. Perhaps the reason that the black sage blooms earlier than the white is in part due to its location. With us the white sage grows on the flat mesa lands; and, while the black sage is not omitted in this locality, it is much more abundant on the sunny slopes of the canyons where the moisture is more in evidence.

E. E. R., Santa Barbara, Cal., asks for information regarding the sages. The accepted name now for the white sage, of which he sent a sample, is *Ramona polystachia*. It was formerly *Audibertia*. The black sage, I suppose named because of its darker color, perhaps because the heads of the flowers turn dark with age, does not grow so high as the white, has a shorter leaf, and looks very different. The flowers are in heads, while in the case of the white sage they are in a long raceme. I suppose that from this head of flowers it also takes the name of ball sage. Mr. R. also sent another sage the color of the white sage, which also had the flowers in balls. The specimen was too meager for determination. There are several sages in California, all valuable for honey, but the two species referred to above are by far the most common and important.

DERMESTES LARDARIUS.

As I am away from home I did not receive the specimens from Mr. N. D. West, Middleburg, N. Y.; but from your expression, "little striped worms," and also from the description given by Mr. West, I have little doubt that the insects in question are the common museum pest, *Dermestes lardarius*. For a figure of this beetle, I refer our readers to my "Bee-keeper's Guide." It is a small gray beetle with a buff band crossing the front part of the wing-covers. The little banded hairy grubs, or larvæ, ringed with lighter and darker brown, feed upon dead animals; and so the bee-hive in spring, and hives where the bees have all died, furnish a very picnic for these insects. I have often found the beetles and grubs within the hives in such cases. I can readily understand how Mr. West, in his great apiary of a thousand colonies, might, after a severe winter, find these grubs in surprising numbers. As they feed only upon dead animals, I do not think that their presence in the apiary need excite alarm or even disgust. It is quite otherwise in our museums where often our insect cabinets receive irreparable damages from the ravages of this pest. In such cases it is killed by the use of bisulphide of carbon, and is kept away by way of aid of naptholine or moth-balls. It may interest our readers to know that the so-called "buffalo carpet-moth," which is really no moth at all, but a little beetle—an insect which plays fearful havoc in carpets and other woolen fabrics, belongs to the same family, and so is a close relative of this museum pest.

CARBOLIC ACID AS A DISINFECTANT.

Subscriber, Greencastle, Ind., refers to my "Bee-keeper's Guide," page 481, where I state that R. L. Taylor keeps foul brood in check by the free use of carbolic acid. He asks what a free use is, and wishes to know if the hives and combs can be disinfected by this substance, using an ordinary hand sprayer. He inquires further if combs sprayed with carbolic acid would be injured, and if formaldehyde, bisulphide of carbon, or copper sulphate could be added to the carbolic acid with profit.

I doubt if it pays to use carbolic acid in case of foul brood in the apiary except as a wash for the hands and to disinfect the tools. While visiting Mr. Taylor I noticed he washed his hands in a rather strong solution after working with any hive before he commenced working with another. I do not believe any of these substances can be depended upon to cure foul brood. The common method given in my book and all our works on apiculture is reliable and satisfactory. The same can not be said of carbolic or salicylic acid. But we should use the carbolic acid freely as a wash for our hands and as a disinfectant to prevent the spread of the disease. If I may be pardoned for making the statement here, I will say that no one can be too careful in any work that has to do with these germ diseases. The little micro-organisms are so insidious, and multiply with such startling rapidity, that disinfection, italicized, should ever be the motto. In case of pruning pear-trees to eradicate pear-blight, sufficient attention is rarely given to this matter of disinfection. The free use of a sponge, wet with carbolic acid, at the end of the cut twig, and to wet saw, knife, or shears often explains why one person meets with success and another with failure. It will be remembered that Mr. Taylor kept foul brood in his apiary as a sort of plaything, or, perhaps, I had better say, as an opportunity for study, and felt safe in doing so. Had he been less intent in the use of disinfectants this would have been quite otherwise. I know a very expert surgeon, and I once asked him the secret of his great success. He gave a first place to his generous use of antiseptics.

Editorial
By E.R. Root.

WHILE the subject of outdoor feeding is old to some of the veterans, to many of our newer readers it is a new one. I believe that we have blundered on to some ideas that may not have been exploited before in the bee journals in reference to feeding in the open air, especially when it is practiced with almost sole reference to stopping robbing when the hives are constantly opened.

A PROFITABLE BUSINESS IN BUYING UP SLUMGUM.

SOME bee-keepers are making a business of buying up slumgum in large and small lots. There are many other bee-keepers who delude themselves by thinking they have got all of their wax out of the slumgum. The delusion is costing all such a good many dollars. An intelligent use of the wax-press will save these dollars that at present go to the fellows who have learned the value in slumgum. When one can make a very good press out of an old half-barrel and a 12-ft. 4×4 hard-wood lever, he is penny wise and pound foolish to give away these "dollars." Wax *always* has a good cash value.

THOSE TISSUE-PAPER SOUVENIR BEES.

IN response to a notice in the last issue of GLEANINGS, of the beautiful souvenir of the bee made of tissue paper, Dr. E. F. Phillips, of the Department of Agriculture, in charge of the Division of Apiculture, reports that he has received numerous inquiries concerning and orders for these souvenirs. If the reader will refer again to the editorial in question, he will see that no statement is made by us to the effect that the bees can be obtained of the Department, although that might be the natural inference. When I wrote the item I left the address of the concern which has them for sale in Washington blank, expecting to put in the street number before that issue went to press. Dr. Phillips writes that the rules of the Department would not permit of his accepting any orders, and he has forwarded all inquiries here, which we will take care of. Others may obtain them from L. Cohen & Co., 630 Pa. Ave., N. W., Washington, D. C., by sending 7c postage.

CAUCASIAN BEES AT MEDINA.

ONE of our correspondents desires us "to put in the next issue of GLEANINGS a description of the Caucasian bees." We have only a few colonies of them from imported queens, and so far are not able to form a correct opinion of them. In one colony the bees are almost entirely Caucasian. They are of a grayish black, and the fuzz-rings are quite pronounced. They are different from the ordinary black bees of this country —enough so, so that I think one could, without very much difficulty, distinguish one from the other. They differ, also, from the Carniolans. The black of the abdomens of the latter is of a bluish cast, while on the Caucasians it is of a grayish black. Our Caucasians are all very quiet on the combs, and, so far as we can see, they are very gentle. They are too young yet to show us their fighting propensities, if they have any. Within a month or so we shall be able to give a more complete account of their disposition, when the weather turns cool and propolis is hard.

In this issue will be found a good description, by Dr. Lyon, of the Caucasian bee in the Government apiary.

SELLING AT TOO LOW PRICES IN LOCAL MARKETS; A WORD TO THE WISE AND THE OTHERWISE.

FOR several years we have urged bee-keepers to take advantage of the early demand for comb honey, especially in the East, which advice we still give. There is, however, an important point to which too little attention is paid. We have found in numerous instances successful bee-keepers in a locality where there is a good demand, but comparatively little honey produced, not aware of the opportunities of their market, supplying their grocers in small lots in the early season at from 1 to 3 cts. per pound less than the regular market at that time in the nearest large city. These bee-keepers do not seem to consider that they can obtain from 16 to 18 cts. for their crop when sold early in small lots, locally, as easily as 12 to 15 cts We urge the necessity of bee-keepers all over the country, when selling in small lots, to see to it that they do not sell below the market.

When there are a good many producers, as in many localities in New York, Michigan, and Wisconsin, it is true that the local stores will not pay a high price, for the reason that there is so much offered, and it is unnecessary for them to do it. On the other hand, there are hundreds of places where only a small amount is produced, and the bee-keepers of these places should be careful early in the season not to sell at a low price, thereby spoiling the market for an entire season. A great deal depends on the locality and the amount produced; but if each bee-keeper is careful, when selling in small lots, the general tone of the market will be very much improved.

HOW TO MAKE AN OUTDOOR FEEDER.

ELSEWHERE in this department the advantages of outdoor feeding are explained; but no description is given as to how these feeders are made. Fortunately their construction is very simple. A two or five gallon crock may be inverted on a board having saw-cuts parallel with and across the grain of the board, said cuts being ½ inch deep, and terminating within an inch of each side and end. But a far better and cheaper arrangement is a common second-hand 60-lb. square can. Scald it out with boiling water to make sure that no traces of foul brood remain, then punch the top of it full of small holes from ¼ to ⅜ inch apart. The perforations may be made with a common wire nail and should be about $\frac{1}{32}$ in diameter. Fill this can with syrup, put on the screw cap, and invert it over a pair of blocks in such a way that the bees can get free access to the perforated top, now the bottom.

If the apiary is a large one, it may require two or three of these cans set out at a time. The plan that we are at present using is to have three cans inverted over two horizontal bars resting on two hives. These bars should be spaced to a distance of a little less than the width of the can top, and be long enough to accommodate two or three cans at a time. A little loose hay or grass should then be strewn under the cans, and over this a piece of cheese-cloth. The bees will cluster in festoons under the bottom side of the feeder, every now and then dropping down in bunches. The object of this loose hay or grass and cheese-cloth is to cushion the fall. While this may seem like going to extremes, yet when bees are doing this all day it is advisable to save them as much of a shock as possible.

The objection to the grooved board and the crock is that the bees struggle and scramble to such an extent they wear the fuzz-rings all off their bodies, and in the scramble also they mutilate and tear each other's wings to a greater or less extent. The inverted square can with its perforations, because of its smooth slippery surface does not give the bees a chance to struggle against each other. A bee will no more than get its tongue into one of the openings than perhaps half a dozen will suck at the same hole. In a few seconds a bunch will be formed that will drop down. Of course, they will fly back and repeat the operation.

Now, right here some may think the grooved board is better because a bee could stick its tongue into the syrup and suck to its fill. In order to bring about the conditions of an artificial honey-flow the bees should not be allowed to fill up too fast. For that reason the inverted can brings about a condition that requires the bees to *spend considerable time in filling up*, with the result that a small amount of syrup, comparatively, will keep a big horde busy all day.

Some one else, I do not remember who, recommended taking an ordinary extractor-can and filling it full of syrup. The top, of course, should be covered. Under the honey-gate is put one end of a V-shaped trough, made of two rough 12-foot boards about 4 inches wide. One end of this trough is a little lower than the one next to the honey-gate. The honey-gate is now opened *just enough* to allow a fine stream to reach the further end of the trough *when it is covered with bees*. But this arrangement would have to be watched almost constantly to prevent syrup running too fast and wasting, or going too slow, resulting in that elbow struggle which should be avoided. Although not having tried it, my impression is that there would not be much chance for the bees to struggle. But don't you see the bees would get the feed too fast, and in one day's time would take up a big canful of syrup?

OUTDOOR FEEDING; AN EFFECTUAL REMEDY FOR PREVENTING ROBBERS OR PILFERERS WHILE ONE IS WORKING OVER THE HIVES.

A YEAR ago we conducted some experiments in outdoor feeding, and established the fact that, so far as we were concerned, we could produce the conditions of an artificial honey-flow so that ordinary queen-rearing operations could go on as successfully, almost, as during a natural honey-flow. It is a well-known fact to the queen-breeders that getting cells accepted, virgins mated, etc., come almost to a standstill as soon as the honey-flow stops. The bees, so far from feeling the condition of prosperity, are seized with a sort of panic, kill off the drones, destroy cells, refuse to build out others, and for a few days, at least, there is a lull. They will recover somewhat, it is true; but the queens reared during a dearth of honey are inferior in every way to the queens reared during a honey-flow; and, what is more, they cost the breeder two or three times as much to produce. Nor is this all. Brood-rearing is curtailed, and the bees pursue a policy of severe retrenchment in order that they may save such stores as they have obtained.

A year ago we began feeding outdoors — cautiously at first; and then as we saw that it *stopped* robbing rather than inducing it, we went at it boldly. This year a honey-flow from red and peavine clover has hung on so that we have not had to feed as early as formerly; but when robbers began to bother, then we start the outdoor feeder, when, presto! all is serene.

THE PHILOSOPHY OF OUTDOOR FEEDING.

As not every one has made the outdoor method a success, it is, perhaps, not amiss to explain the philosophy of it. By understanding the principles involved the reader may discover the cause or causes of failure. The average bee-keeper feels very cautious about exposing sweets to bees, as he knows that, when the honey-house door is left open, perchance exposing a lot of combs, that there will be a fearful uproar, cross bees following one even around into the streets. Well, then, if this be so how can one possibly feed bees outdoors without bringing in precisely these conditions?

When you discover that your bees are robbing in your honey-house, what do you do? You close the door, and after a time let the imprisoned bees out and close the door tight again. The *sudden* interruption of the wholesale pilfering causes the bees to hunt high and low for more of the same goods. They will pounce on to every weak colony, and in some cases rob them all out entirely. It is the *sudden stopping* of the wholesale gathering of the sweets that starts up the fury of the bees. If the stoppage is *gradual* the situation is very different. Let us now take another case.

Suppose we scatter within a hundred yards of the apiary three or four dozen well-filled combs of honey. In the course of an hour the bees will discover them and pounce on them like a lot of little wolves. If you were to take all of these combs away from them before they have finished up the job, they would pounce on to every weak colony in the yard, hover around the doors and windows of the house, and, in fact, make themselves a general nuisance; but let those bees clean the combs out *gradually*, so that no more is left, and they will quiet down because they know that the sweets have been cleaned up and no more are to be had.

But the first day after the combs have been exposed, the bees will be all excited; and the first hour or two, especially after they have discovered the sweet, if you open up the hives you will probably be pestered by robbers. Why? Because not *all* the bees have learned the source of the honey. By some means of communication the fact is published to all the bees that a "find" has been made, but its exact location must be discovered by each bee. There will be a general hunt, and the first hive that is opened will be the object of their attack. And why not? They know that *some* bees are getting something good, and they naturally suppose that this is the source. Before we open another hive we will wait till the next day, and we may then expose some more combs. All the bees by that time have learned where the sweets are to be obtained, and they will go there and nowhere else.

I talked with that veteran bee-keeper, H. R. Boardman, who explained to me that he makes a regular practice, after the honey season, of exposing combs (which he desired to have cleaned up) hung on the siding of his buildings surrounding his bee-yards. He emphasized the importance of putting out *enough* combs so the bees could *all* help themselves.

Lest the reader may not have discovered it, I will explain that the two important requisites to outdoor feeding, in my mind, are, first, putting out a lot of feed in some definite place where the bees have learned to go to it, and keep up this feeding on every day when the hives were to be opened. The busybody robbers will all be drawn to the feeders, while you, in the mean time, can work your hives just as you would during the honey-flow. These would-be robbers know that food is to be obtained, and they go right where they have been in the habit of getting it — that is, to the feeders, leaving the exposed combs unnoticed. Our boys have learned by experience that, when robbers get to be a nuisance, they can stop this annoying pilfering almost entirely by starting a large outdoor feeder going a few yards from the apiary. Just as soon as the bees have learned there is something to be had they will desert every thing for the feeder.

So far I have, perhaps, given the impression that outdoor feeding has the only merit of stopping robbing. This is a small part of the entire benefit. Brood-rearing is stimulated; syrup is stored in the combs preparatory to winter; and the result is, the colonies are in prime condition, and ready for the cold that follows. There is no fussing with small feeders, for the work can all be handled outdoors with two or three large feeders. Just before the feeding finally stops, the apiarist goes through his hives and finds which have enough, and which have enough and to spare. Sealed combs are taken from these latter and given to those which have not enough; and the result is that such a colony in the yard receives a supply sufficient for its needs.

HOW TO MAKE THE BEE-FEED ANTISEPTIC.

Another advantage of this outdoor feeding is that it permits one to put into the feed some antiseptic solution that will kill the germs of foul brood if that should develop in any one hive where the feed is carried by the bees. Ordinary carbolic acid is very good, but the bees dislike the smell of it, and often refuse to take the syrup. In Thos. Wm. Cowan's admirable work, "The Bee-keeper's Guidebook," the author recommends naphthol beta, which the bees do not dislike, and will take in the syrup readily. This can be purchased at any of the large drug houses, in ounce packages, for about 25 cents an ounce. To prepare the syrup, proceed as follows:

Break an ounce package into an eight-ounce bottle (or a half-pint measure, which is the same thing), and pour alcohol on to the powder, and, while pouring, stir until the powder is all dissolved. Into an ordinary can pour 140 lbs. of water; then add sugar gradually until there is an equal weight of sugar — that is, 140 lbs. If the sugar be poured in gradually, and the mixture stirred, there will be no need of applying heat; for in this proportion, half and half, the syrup will be perfectly clear if it be thoroughly stirred. When the syrup is nearly clear by the stirring, pour in the mixture of naphthol beta, and alcohol, and stir until it is entirely incorporated in the mixture. The naphthol beta is a powerful germicide, and is very cheap; and as it costs so little one can well afford to give his bees a feed that will resist foul brood. As this disease is more or less prevalent in the country, every bee-keeper, if he be compelled to feed, should give his bees an antiseptic food. In England a naphthol-beta solution of this kind is used to cure foul brood direct.

STOPPING ROBBERS DURING EXTRACTING.

I have not tried it yet, but I am of the opinion that, when robbers are a nuisance during extracting time, after the honey-flow, if, two or three days previous to the extracting, a large feeder full of thinned-down honey be exposed, and that same feeder be kept going on the days of extracting, the bees will let the apiarist work right along unmolested, provided he is not too messy in his work. If the combs are exposed no longer than is necessary to get them out of the hives and into the comb-box, I will guarantee there will be no robbing. By giving bees, say, 50 or 100 lbs. of syrup or thinned-down honey one can extract, I think, a full day's extracting, aggregating anywhere from a hundred to several thousand pounds.

Of course, one should not feed any sugar syrup if there is any danger that it go into the extracting-combs and be taken again to the extractor.

A FAIR CRITIC; HERESIES; CUBICAL-SHAPED HIVES, ETC.

THE *Rural Bee-keeper*, edited by W. H. Putnam, and published at River Falls, Wis., is one of the newer bee papers that, for a youngster, is showing a great deal of strength and growth. The reason, I suspect, lies largely in the fact that its editor injects his own personality into its every page. But the feature that struck me more particularly is the fairness and liberality of its criticisms, especially when directed toward a brother-editor. In the last issue of the *Rural* Mr. Putnam quotes approvingly a portion of an editorial from these columns on page 68, on the subject of heresies in bee-keeping. He joins most heartily with me in the desire to have the truth, let the facts cut where they may; and then, referring to what I have said, he adds, "I firmly believe he is seeking for the facts." Bro. Putnam calls attention to a statement of mine recommending the Langstroth hive, first, because it is standard, and, secondarily, because it allows of a larger amount of super surface on top of the brood-nest than a perfect cube. Almost in the same breath I condemn a divisible brood-nest in the shape of a cube because a cube is not adapted to the production of comb honey. Right here Mr. Putnam takes issue with me strongly, and then draws attention to another editorial statement on page 527 of this journal in which I observe that the small baby nuclei were "standing these extremes even better than the old-fashioned Langstroth *two-frame nuclei.* The bees can keep a small cubical space warm much more readily than a flat oblong room with a great deal of surface exposed to the weather."

Commenting on the foregoing, Editor Putnam adds: "The above statement is correct, every word of it true; and this disproves the statement that there is no advantage in the cubical over the flat oblong-shaped hive."

In the quotations made above from p. 527, as will be seen from the Italicized portion, I was comparing a small baby nucleus, approaching a cube in shape, with a large flat slab-sided *two-frame Langstroth-sized nucleus.* The shapes of the two are so radically different that I was led to remark what I did in favor of the more compact hive, even though it were very much smaller; but, as a matter of fact, the baby nucleus under consideration has almost the exact proportion of the eight-frame Langstroth hive which I had been recommending. I was not comparing an exact cube with one having a shape somewhat approaching a cube, like the eight-frame Langstroth hive. My theory has always been that such a hive so nearly approaches the compact form of a cube that it has, to all intents and purposes, all the advantages without the disadvantages; but the two-frame Langstroth nucleus is so outlandish in shape, so badly proportioned, that, notwithstanding it is a great deal larger, the smaller box of bees is able to stand the strain of weather conditions better.

I admit that a perfect cube may be a little better for wintering; but when bees winter well in Langstroth hives the country over I don't know what more we could ask. The secret of good wintering is not so much in the *shape* as the relative *size* of the hive to the cluster. A small colony in a large cubical hive will not winter as well as a hive that can be contracted to the size of the cluster no matter what its shape.

WHAT HAS THE HARVEST BEEN?

CONDITIONS for the clover belt, including the Northern States as far West as Minnesota and Iowa, have materialy improved. We are getting reports now from quite a large number who have secured fair crops of honey. Many report half a crop; still others a fourth, and not a few a total failure. The States that seem to lead off in order are about as follows:

Michigan has had a good season generally —rather better than last year. Ontario reports a good yield. New York sends in a variety of reports, all the way from a total failure to a big crop. I should judge the aggregate would be something under half a a crop for New York. Reports are somewhat unfavorable from Pennsylvania, although a few show a good season. The aggregate of reports from Wisconsin and Minnesota is all the way from a fourth to half a crop. A few from these States report an immense yield; but the great majority report poor.

The season in Northern Illinois has been fairly good, but poor in the southern part. Iowa reports from a fourth to half a crop. Vermont may have a fair yield. We have had no reports from the other New England States. The honey season has been generally poor in the South-central and Southeastern States, especially in the Southeast. Reports from Colorado are rather discouraging. The season, unquestionably, will be light in that section. In Texas, Mr. Udo Toepperwein reports as follows under date of Aug. 3:

> *Mr. E. R. Root:* — Replying to your favor of the 28th, I beg to state that the conditions for a late honey crop have not improved since last report, and, if any thing, they are more discouraging. We have just had another storm with some rain, which, I suppose, has finished up mesquite. However, we have had quite a nice little flow from cotton blossoms in different parts of the State; and the reports I am getting by letter, and the reports made at the convention of the Texas bee-keepers at College Station last week, show that bee-keepers are, throughout the State, expecting a fall flow from different weeds, broomweed being the main plant. I am looking for a pecan honey-flow. We had a heavy crop from this last fall, and indications are that we shall have a crop of pecan honey-dew this year. This pecan honey is something like buckwheat honey. A good many people like it; but as it is very dark we usually sell it to the biscuit and cracker companies. The bees are all in very good condition, having plenty of stores for winter.
>
> San Antonio, Tex., Aug. 3. Udo Toepperwein.

Taking it all in all, I am inclined to think the aggregate yield will not be less than last year in the clover belt; but Texas and Colorado honey will run considerably short of last year. All reports indicate that clover honey is of very fine quality, what has been secured, and a great deal of it will rank fancy.

Bee-keepers should not make the mistake of holding their honey too long. The markets are not now glutted; and, while the receipts are light, good prices will be realized.

In the meantime let the postal-card reports come in. Give us the exact facts, good or bad, for your locality in one or two sentences.

GENERAL
&
CORRESPONDENCE.

BEE-KEEPING IN THE ISLAND OF BARBADOS.

Some Misconceptions about the Industry Corrected; Blacks Inferior to the Yellow Race.

BY W. G. HUTCHINSON.

I regret that I can not, in accordance with the invitation in Gleanings for April 1st, treat of this island as a honey-producing place in comparison with Cuba, as I have never been there; and, being a distant place, and till of late a Spanish colony, there has not been much intercourse between the two islands, and there is no bee-keeper here, I find, who has had experience with both of them, and of which experience I might avail myself. The affinity of nations is shown up with great clearness in the West Indies. There is always emigration going on from this island to other West Indian colonies, and it is other British; then the Danish, then the Dutch, then the (late) Spanish, and, lastly, the French colonies, that attract emigrants. The French are the nearest of foreign colonies, but they have the least drawing power over emigrants.

One of your contributors predicts that the future of bee-keeping lies within the tropics. Not *all* the future, perhaps. There seems to be a vigor about bee life in temperate climates that is lacking in warm lands. We read of yields of 400 lbs. to the colony in the former; but I have not heard of any one in this island getting even the half of that. I suppose that, as in other departments, it will be found in time that the tropical bee-keeper will derive help from his brother in temperate climates, and *vice versa.* We are flooded every year with tourists bent on escaping the winter of their country, while our doctors sometimes order us away to a cold climate for the same reason. Again, two-thirds of the sheep butchered in our markets come from the States, while at present we are exporting large numbers there, as they are found to stand the winter better than the native-bred animal, though this may be found to apply, as with West Indians of the human species, to the first or at most the second winter only. In the tropics we shall want in queens the "go" that is begotten in the States, while bee-keepers here may come to want West Indian queens if they have characteristics like our sheep. We have one advantage—no trouble about wintering. Still, in the last and first months colonies often dwindle. A neighbor of mine had three in a flourishing condition in July last year but they dwindled; and, early this year, they became extinct. We have a further advantage in a second honey-flow in November and December, but again the honey gathered there is usually mixed with honey-dew, and so its quality is marred.

There are people in every class of society here interested in bee-keeping, from the Governor (who has recently left us) to this neighbor of mine who is a superintendent on a sugar-estate; but no one has so far relinquished a living for it. Honey is slow of sale; and last year prices ruled as low as 8 cts. a section. Most of our trees and shrubs yield nectar; but practically wherever the sugar-cane can be planted these have been destroyed, so that I doubt whether, outside the suburbs of the town where gardens and trees abound, any yard would support a hundred colonies. Last year Mr. Seale, our oldest bee-keeper, took count of ten of his colonies, and found that they yielded 885 sections, and this may be regarded as a fair yield.

Some on your side of the water favor half-breeds, and others see some good in blacks. My experience here goes to show that the more the black strain prevails the less the value of the bee as a honey-gatherer, putting aside the crossness. I find the best half-breeds are not equal to Italians of ordinary quality. If it is true that it is the fittest that survives, then the Italian strain is the fittest; for the cliffs and bottoms of rocks that used to be occupied by wild bees are often now to be seen occupied by Italians or half-breeds. If bee-keepers are careful to keep up pure Italian stock it seems that, in time, the black strain will disappear entirely among the wild bees of the island.

Boscobel, Barbados.

COMB-HONEY GRADING-RULES.

Only One Bee-keeper out of Ten Understands Grading; Gleanings Rules Preferable to Washington.

Editor's Note:—Our readers will remember the article by Wm. Muth-Rasmussen, on page 536, May 15, concerning the confusion in the comb-honey grading-rules. By referring to this page it will be seen that there is a difference between the Washington grading-rules in the *Review* and those given in GLEANINGS; and the question naturally asked is, "Which are correct?" Realizing that this matter is important, we wrote to a number of honey-dealers, calling their attention to the discussion, and requesting their opinion. We have heard from but a few of those to whom we wrote, but we take pleasure in giving those here.

Mr. Root:—We have your letter of May 18, concerning the article by Mr. Muth-Rasmussen, about the confusion of grading-rules, and in reply will state that we are always glad to give any assistance or opinions that we can on this important question. In handling the enormous amount of honey that a jobber does in the course of a season, he has a sufficient chance to find out how much some bee-keepers know in regard to grading honey. In putting the matter plain, we might state that only one out of ten understands the grading of honey, or, even if more do, they do not take the time and pains to follow the instructions that have been given from time to time. Take the Washington grading, for instance. According to our experience we could not go by this at all. The fancy grade might pass in some instances, but the No. 1 would look better in a grade of about No. 3 than any other place. We have a trade, as no doubt every other jobber in a large city has, that demands the very finest thing that can be secured in comb honey, and they are willing to pay a good price. For this trade we put out what we call and market as "extra fancy." The sections are all to be filled to the brim on all four sides; the honey shall be snow-white. and the sections all scraped clean of propolis. No unsealed cells may appear in this honey. Then our Fancy and No. 1 are the same as those in the GLEANINGS grading, but we have very little sale for No. 2 honey, and no sale whatever for No. 3, as we think all No. 3 honey where sections are only half filled should never be sold by any bee-keeper; and it is our opinion that this kind of honey is worth too much to the bee-keeper to keep as bait sections for another season. Then in grading amber honey a fancy and No. 1 are the only grades we have any calls for here, with the exception of buckwheat. A great many bee-keepers make a serious mistake in not following the grading-rules as given in the journals; and a great many of them seem to think that, as long as they put a nice row of honey next to the glass, they can put any thing back of this; and as long as their commission man or jobber does not have time to look at it when they bring it in, all well and good, just as long as they get their money for it. A great mistake is made by a large part of the bee-keepers in using foundation starters in their sections only, as the bees are apt to fasten only the sides and top, and not the bottom of the section. This causes a serious breakage in honey when shipping, no matter how carefully packed. GRIGGS BROS.

Toledo, Ohio, May 19.

STANDARD FOR "FANCY" SHOULD BE HIGHER.

Mr. Editor:—Yours of May 18th regarding grading-rules is at hand. We have always thought that your definition of fancy comb honey would not come up to the requirements in Canada. We should not consider as "fancy" any comb honey with most of the outside row of cells uncapped. Comb honey that does not show any open uncapped cells when placed in shipping-crate, with three-inch glass, would be considered fancy. Our No. 1 in Toronto would be about equal to your "fancy." The other would range accordingly. E. GRAINGER & Co.

Toronto, Can., May 30.

[You have evidently confused the GLEANINGS rules with those of the Washington. GLEANINGS "Fancy" does not permit of "most of the outside row of cells uncapped."—ED.]

NEITHER GRADING FOLLOWED; A WIDE VARIATION FROM DIFFERENT PRODUCERS ON THE SAME GRADE.

Mr. E. R. Root:—Replying to yours of May 8, asking for our opinion on the grading of honey, we would say that, on this market, neither of the gradings mentioned is strictly followed. It seems to us that, in attempting to grade into "fancy," A 1, No. 1, and No. 2, sufficient latitude is not allowed, and, as a result, no two men will agree as to what would go into A 1 and No. 1. The result is a wide variation in honey of the same grade from different growers. This has naturally led to a grading which may be peculiar to this market, and which, in our judgment, is very much simpler. We speak of "fancy," No. 1, choice, and lightweight. The term *fancy* would cover practically the same as you have it in GLEANINGS. This should include the finest, both as regards color and filling, to be had.

No. 1 would take in all of what is covered by the term A 1, and part of what is now called No. 1. We think the term *choice* better than No. 2. According to the accepted phraseology, No. 2 would mean inferior in quality; but in honey this does not necessarily follow. The quality of No. 2 is in most instances quite equal to that of No. 1. We are now speaking of the eating quality alone. In the sale of honey it is the appearance that we are dealing with. The eating quality has to be considered separately. This choice grade would take in the poorest part of what is now covered by No. 1 and the better part of No. 2.

We now come to the fourth grading, which is light-weight, and this speaks for itself. In an experience covering over twenty years, we have used these terms almost from the start, and found that they were readily understood by the purchaser; and the difference in the grades was sufficiently plain to make itself clear to one who was a novice in the business.

This is our own experience in our own particular market, and we trust that it may shed some light on the subject.

Blake, Scott & Lee Co.
Boston, Mass., June 2.

FEWER GRADES MORE DESIRABLE.

Mr. Editor:—The writer has been reading your letters on the grading of honey. So far as our market is concerned, A No. 1 honey will bring as much as "fancy" when it comes to selling in a jobbing way. Now and then one might find a grocer with a strictly fancy trade who might pay ten or fifteen cents per case more for the fancy honey than for the No. 1; but this is an exception to the rule. We do a strictly jobbing business, and find that, by classsifying our A No. 1 honey, and honey marked "fancy" under one head, we never have any complaints. "Strictly No. 1" is the term we mostly use, as we hardly believe in any one quoting any thing as "fancy," that word signifying something different from what almost every person uses. We believe that, the fewer grades of honey there are, the better it is for both the receiver and the producer of honey.

We ourselves believe all honey should be classed according to weight, the white honey as heavy, medium, or light, and amber the same way. In this way we believe the honey-producer would get more money out of his honey than he does at present. The popular demand seems to be for heavy-weight honey, and in several instances we have been able to get from 15 to 25 cents per case more on account of the weight when the quality, according to the grading given in Gleanings, would not grade over No. 1 stock.

The marketing of honey in this section during the last few years has been done by the case and not by the pound. The dealers seem to think this a better way to buy, as it saves figuring, and we ourselves find this method more satisfactory, as hardly any two scales weigh alike, and this causes more or less dispute and claims for shortage.

At one time last winter we had on our honey-platform five or six different styles of sections. We believe the bee-men should work in unison, and adopt a uniform section-case. Where we have shipments from twenty-five or thirty shippers, all put up in different sizes of cases, you can readily see how hard it is to fill an order for twenty-five or thirty cases and give parties a uniform-sized case. The demand in this section seems to be for a twenty-four-section case.

C. C. Clemons & Co.
Kansas City, Mo., June 2.

]It would be hard to find a greater diversity of opinion than we have here on these grading-rules. It appears, too, that no two of our commission men follow exactly the same rules, and that no two bee-keepers who do attempt to follow the same rules grade alike on the same grading. One commission man wants more grades and another wants less. The *Bee-keepers' Review* has been recommending one set of rules and Gleanings has been putting at the head of its honey column another. It begins to look as if every bee-keeper and every market has his or its own system of grading. This is not as it should be; for under present conditions the quotations for one market can not be compared with those of another. If, for example, I am offered 15 cents for Fancy in New York, and 16 cents for the same grade in Chicago, with equal freights I send to Chicago. I then learn that *my* Fancy is only No. 1 in Chicago, and this brings only 14 cents. Then I wish I had shipped to New York. I send the next lot to the Eastern city and get my price. It is certainly demoralizing to the trade to have such confusion. It is high time that we struck at more uniformity. As it is we are depressing prices by this way of doing. Our columns are open to any discussion that will get us out of this mix-up.—Ed.]

THE MARKETING OF HONEY.

The Selling of Candied Honey in the Toronto Market; the Folly of Rushing Honey off to the Large Centers.

BY R. F. HOLTERMANN.

Your article on "De Luxe Honey for the Market" interests me very much. It is quite a few years since I inaugurated the system of selling granulated honey in paper. The matter of exhibiting this form of honey is one thing; to put it on sale for the public is quite another. Although several barrels of this granulated or candied honey were sold in a small store in a very short time, it was not followed up by me. A distribution of responsibilities, and much work in hand, prevented me from again taking this method of marketing in hand, a description of which, with a picture of a barrel of honey in a grocer's window, was given in Gleanings some years ago. This has grown until the last winter, of which I will now give my experience.

Let me say you have now gone further than I have, and I believe your system is the correct way. I had thought a year ago of cutting the honey into blocks with a butter-cutter, but not of putting them up in the neat package you have designed. I find that some of the best stores, not all, refuse to "be bothered" with cutting up the honey. It is too much trouble to cut the honey up as you propose, or we would overcome the difficulty.

I have put the candied honey into about thirty-five stores in Toronto; in fact, with one exception, into every store in which I tried to introduce it, and that store had a stock in glasses and tins. The dealer told me he had a stock. I told him to take a tin of the candied; and when he could not sell his present stock, then try to sell the candied. He said, "No, I feel sure if I were to get the candied and sell in blocks then I could not sell my present stock. I will wait until the present stock is reduced, then buy the candied."

I told him he could sell enough candied (where otherwise he would not sell at all) to pay for his present stock; but he declined until later. The sale price is fixed at 2 lbs. for 25 cts. What I sell at does not here matter; but let me say that, at that price, the retailer has a good margin. He is interested in the sale of the goods; can afford to advertise them; and the retailer, not paying for a package, and getting a first-class article, is pleased.

Let me say right here our dull honey markets are largely the result of rushing honey too much to centers. These centers set the price for the country, and are too low.

Next, and very important, bee-keepers are so unbusinesslike that they try to wholesale and retail in the same market. Nothing will antagonize a dealer more quickly and *justly*. Then, still worse, the wholesaling and retailing are attempted at the same price, or nearly so. A retail establishment is not a charitable institution run for the benefit of bee-keepers, and the margin required on goods is much greater than one not in business realizes. Give your dealer 25 per cent, or more is better, on his goods, and he can afford to push them. In Canada I have created this market. It will revolutionize selling honey; much more honey will be sold in this way, and I do not mind how many more sell in this way, but do not let them cut prices. Every one who gets honey from us is compelled to sell at 2 lbs. for 25 cts., which price is none too great for a first-class article. I find the reason why honey is not sold more is that it is too cheap, and creates suspicion rather than that it is too dear.

I send you herewith a guarantee which each dealer gets to put up with the honey.

$100.00 REWARD.
Brantford, Ont., Jan. 27, 1905.
To (name of retailer).

Dear Sirs:—We will gladly pay one hundred dollars ($100.00) if you can find any adulteration in the honey with which we supply you, and which you sell in the granulated solid blocks at 2 lbs. for 25 cts. In our apiaries (which we believe are the largest and best equipped plant of this nature in Canada), our aim is to put upon the market goods of the very best quality.

Yours very truly, FOSTER & HOLTERMANN.

Sell good honey for table consumption; ask a good price; give the retailer a good margin, and distribute it over the country instead of rushing it off to the large centers, and you will see a different face on the honey market; and, so far as success in business goes, a different face on the bee-keeper. I would suggest that you refuse to supply this "de luxe" style of package to any who would not agree to maintain the retail price. Only the choicest honey should be put up in this way, and it should bring a good price. I am willing to be one to take this package and maintain the retail price. In one store where this honey *candied* is sold they retail as much as two 60-lb. tins. This store now sells more candied honey in a week than it did of the liquid heretofore in a year. I am very much pleased that you have taken this matter in hand. May the bee-keepers now bear in mind not to sell at such a figure, wholesale or retail, as will either leave him no profit or leave the dealer none. You might as well have a honey-extractor without a crank as to try to improve your honey market without leaving the retailer a good profit. I may say I do no retailing at all. I do not want any one to come to my apiary and stop the gang to sell them a few pints of honey.

Brantford, Ont., Can.

[I particularly endorse your advice to give the retailer a good margin instead of rushing his honey off to the large centers. Of course some honey (and perhaps the most of it) must be disposed of through the big markets; but the bee-keepers should be careful not to glut any given city by getting too much in that place. I am glad you appreciate the possibilities in selling candied honey. I feel sure that the future will see much more of it sold than is now.—ED.]

MEXICAN BEE-KEEPING.

The Small Undersized Bees.

BY W. D. JEFFERSON.

I will try to describe those little yellow bees of which I sent you a sample from Brownsville, Texas, last winter. They build their nest on a small tree or bush. The outside is built of a material similar to that in wasps' nests. A large colony builds a nest about the size of a ten-gallon keg, and about the shape of a common jug. They leave a small entrance right in the lower end of the nest. When they fill this one with honey and brood, they add another on the lower end; and the Mexicans tell me they often find them with as many as five of those rooms or supers. They often get as much as ten gallons of honey from one colony of those little bees, and they say their honey and comb are much whiter than that made by common bees.

I was not fortunate enough to see any of the comb or honey; but one trouble is, when you tear a hole in their hive and break their honey they leave. The Mexicans also tell me that they have hived them in boxes, and succeeded in making them stay and work, but they plaster the inside of the box with the same material used in the nest. They are, undoubtedly, great workers, and very industrious. I have seen several colonies of these little bees, but I could not get to see any of their honey or comb. The Mexicans tell me that, if you disturb them, they are very vicious, and sting much worse than the common bees. But they are very easily subdued with smoke. They are much quieter in yards than the common bee just so long as they are not bothered.

At Brownsville, bee-keeping is almost in its infancy. The Mexican's favorite hive is a shipping-box that holds two five-gallon cans of coal oil. They knock the bottom and top off, and tack cloth on the edge and lay it down on its side. When that box is filled they add another one in the same way. I have seen as many as five boxes filled by one colony. There are two or three Americans who have a few hives with movable frames, but they are beginners.

Corpus Christi, Texas, June 17.

A VENTILATED DANZENBAKER BOTTOM-BOARD.

A 5x8 Section Holding 2 Lbs. of Honey.

BY H. L. LUCE.

You sketch and comment upon a ventilated bottom-board, page 316. I have been studying ventilation, and will give my method, using the Danzenbaker bottom-board.

I bore two 1¾-inch holes centered 3¼ in. from back end; 2 or 2½ in. apart, cover holes on inside with wire screen, and place an ordinary wooden button of ⅜ lumber, 2×6, fastened with a ¾-inch screw at the center, *under* the bottom, so that both holes may be closed with the one button. It is easily accessible, and the ventilator can quickly be opened or closed, wholly or in part as occasion demands.

I believe if J. L. Barfield, pages 490 and 667, would give this wide-open ventilator a trial, thus helping to cool off a swarm just hived, he would have no trouble with bees coming out.

I think this ventilator should be kept closed except when first hiving a swarm; and as hot weather comes on, and a strong swarm shows a tendency to cluster out, then give an opening to the ventilator as the swarm, location in sunshine, weather, etc., seem to require.

I think that, by the use of this ventilator, clustering out and loafing on hot days can be relieved, and along the same line the swarming fever held down very largely, especially with the use of the ten-frame Danzenbaker, and locate in shade after 10 o'clock, giving plenty of room above.

I can not refrain from joining with Virgil Weaver, page 596, in his plea for a larger package of comb honey. While I do not fancy the tin-pail package, I do think it very important that we find a large package. My idea would be for a 2-lb. one-piece grooved section, 5×8 inches. I believe the adoption of this alone would nearly if not wholly double the consumption of comb honey, and it could be easily done, for very many honey-producers are now using the plain 4×5 section, and the 5×8 section could be used in the same supers without any change or trouble; then any size of carton could be used, holding 2, 3, or 4 sections, making a 4-lb. or 6-lb. package; and, more than that, I am of the opinion that bees would work much more readily in the larger section than in the little cramped 1-lb. section. Does not Mr. Townsend imply the same, page 594? I fancy they might not be so much inclined to sulk; and I think more honey could be stored, as all the bees could be kept constantly at work.

There seems to be one drawback to getting this one-piece 5×8 section, for I have tried three or four factories this spring, and they all tell me their grooving-machine will not take so long a piece. Now, Mr. Root, will you not get a new machine made that will make this section? If so, I am your customer for all I can use, and I know I can sell the 5×8 section here too. It ought to prove to be economy, too, for the 5×8 ought not to cost much more per 1000, and would hold 2000 lbs. instead of 1000 lbs. If you will get out this section you may send me the first 1000.

Inavale, Neb., June 21.

[In moving bees to an outyard these two holes in the bottom-board, as you describe, would come in good play; but generally it would be cheaper and more practicable to put four ⅞-thick blocks (one at each corner) between the bottom and hive-body. When the swarm calms down, or the weather turns cool, remove them.

The bees will certainly take to the large sections (5×8), but the average market would not receive them as kindly.—Ed.]

WHAT IS THE U. S. GOVERNMENT DOING FOR BEE-KEEPING?

With Photos by the Author.

BY REV. D. EVERETT LYON, PH. D.

Believing that it would be of great interest to the readers of Gleanings to know from an eye-witness, and to see from photographs taken on the spot, what the U. S. Government is doing for apiculture, the writer was sent to Washington in May, at the expense of The A. I. Root Co., and the following is an account of that tour of investigation:

Upon arriving in Washington, D. C., on the afternoon of Tuesday, May 22d, I at once hurried over to the office of Mr. Frank Benton, the head of the Division of Apiculture, to make final arrangements for an inspection of the government apiary. Mr. Benton greeted the writer in a most cordial manner, and in our association together on that and the following day impressed me as an intense lover of bees, and anxious to do every thing possible for the advancement of the bee-keeping profession.

Mr. Benton is of medium height; I should say about 5 feet 7 inches; weighs about 130 pounds; and, though his hair and moustache are iron gray, his eye is bright and his step has the vigor of youth, and it will be many years before he will be called upon to see Professor Osler.

From what I saw and heard I am convinced that no other man in the United States is as well qualified for the position of government apiarist; for, in addition to many years of experience in keeping and studying bees in this his native land, Mr. Benton has spent years in Cyprus, Austria, Turkey, India, and the Holy Land, in forming an acquaintance with and in studying the habits of many races of bees in their native habitat. In addition to all this, Mr. Benton is a born investigator along entomological lines, and wears with honor to himself and his alma mater his degree of Master of Science.

So much for the man—now for our visit to the apiary. It has been only within the last two years that the government has had an apiary, and that quite limited—only 50 colonies, of several pure and some hybrid crosses—simply for purposes of experimentation. The apiary is located right in the heart of Washington City, on a beautiful common in the rear of the Agricultural Building. In the yard are colonies of pure Italians, Cyprians, Carniolans, and Caucasians, and a number of colonies of crosses of above-named breeds. The mating-ground is over on the Virginia side at Arlington, so that there is no trouble on the score of controling such matings as are desired.

I was much impressed by the freedom with which Mr. Benton handled a colony of pure Cyprians, and I looked upon these operations from a safe distance, knowing full well the vindictive disposition of this race of bees. The morning was very cool, making it unfavorable for handling any race of bees, to say nothing of Cyprians; but in spite of this Mr. Benton, without veil, gloves, or smoke, opened a hive of pure Cyprians and lifted frame after frame from the hive and shook in the air the bees from off their combs, and, although they flew about him quite excitedly, yet they made no effort to sting him, which was to me a revelation. Mr. Benton assured me, however, that the Cyprians were a race not to be trusted, and when once fully aroused could not be subdued by the densest smoke, and for this reason they would never be generally kept, although they excel all other races as honey-gatherers. He did believe, however, and some crosses that he has made confirm his belief, that by mating a Cyprian queen to a drone of a gentle race like the Carniolan or Caucasian we could in the progeny get a bee that combines the honey-gathering zeal of the Cyprians with the gentleness of the race with which the queen was crossed; and in this connection Mr. Benton assured me that in a cross the offspring partook more of the quality of the drone than of the queen, so for that reason he had used drones of gentle races with which to fertilize the Cyprian queens rather than the drones of Cyprians with which to produce a cross with queens of the gentler races. We next opened a colony of pure Carniolans, a race with which the writer had had previous pleasant experience, and found them to be remarkably gentle, a trait characteristic of this race. Mr. Benton stated that he could not account for the prejudice that so many bee-keepers have for this race, for they are, with the Caucasians, of which we will speak in a little while, the gentlest of all races, not even excepting the Italians.

Several years ago the writer secured a Carniolan queen bred from an imported mother, and purely mated, and the gentleness of her offspring was almost beyond belief. Their hives could be opened and jarred without smoke, and the writer often handled them upon coming from the stable with the odor of the horse upon him, and they did not resent it—a fact that can hardly be said of other races. Coming from the cold Alpine regions of Austria, they began to work earlier in the season than the blacks or Italians, and would begin work earlier in the morning and continue even into the cool of the early evening because of their hardy constitutions, due to centuries of residence in the cool mountains of Austria. Their comb honey was whiter than that made by Italians, due to the fact that they do not cram the cell so full of honey as do other races—this often giving it a watery appearance—but they leave the cell just a trifle short of being full and thus preserve the snowy whiteness of the cappings, so much desired by the purchaser of a high-class grade of honey. Mr. Benton declared that years of experience had taught him that, with proper care, Carniolans were no more prone to swarming than other races —a fact that the writer also had found by experience. These bees are black, with bodies more or less covered with gray down, and ringed on the abdomen with gray.

We next examined some crosses of Cyprians and Carniolans, also of Cyprian and Caucasians, and found in each cross a fine blending of the characteristics of each race. The main object of my visit was to see and learn the facts concerning the Caucasian bees, as the daily press has had much to say of them of late, some journals going so far as to say that they were a non-stinging race of bees. There is but one pure colony of Caucasians in the country, and that is in one corner of the apiary, and from that colony a number of queens are being reared, and in this connection friend Benton requested me to say that the Government has no idea of going into a free distribution of queens similar to its annual seed distribution, as the demands would be beyond all possibility of filling. In 1902 Mr. Benton secured three Caucasian queens direct from Russia, and in 1903 had full colonies with which to begin the season. The most striking quality possessed by this race is their wonderful gentleness; in fact, no smoke is needed, as a rule, to quiet them, as they may be manipulated without veil or gloves. The only time they seem to show any signs of resentment is on a cool morning if their hives are unduly jarred; but a slight whiff of smoke over the tops of the frames is sufficient to quiet them at once. No smoke was used at all when Mr. Benton opened the hive, although the morning was unusually cool, so cold, in fact, that the writer was compelled to wear a spring overcoat, and yet the bees were as gentle as lambs. Frames were lifted and purposely dropped back into place, the hive jarred, and in addition to all this the bees were rubbed around the comb with the palm of the hand; hot breath was breathed upon them; in fact, every thing that angers bees was done to them, and their submission was simply wonderful. I have handled many races and crosses of bees, but never saw any as gentle as those Caucasians. I can readily understand how the press has spoken of them as "stingless bees." As to their honey-gathering qualities they are not remarkable, but hold their own alongside of the Italians and other races of that grade. In size they are slightly smaller in body than the Italians, and in this respect conform to the type of oriental races. The queens vary from a golden orange to a black color, inclining, however, more to the dark type.

The workers are not very uniform in their marking, but the general type is of a peculiar leaden gray that gives the race a ringed appearance. They are very prolific, and the workers are active and keen in their quest for nature's sweets, and for crosses with Cyprians the drones of this remarkable race will be very valuable.

It now being nearly noon we started for the offices of the Bureau of Entomology, and found that the Division of Apiculture had quite commodious quarters in the annex to the Agricultural Building. In addition to Mr. Benton as chief there are others in the Division of Apiculture whom the writer had the pleasure of meeting, and found that all were enthusiasts on the subject of bees. I might state that I met at the apiary Mr. E. F. Phillips, Ph. D., professor of entomology at the University of Pennsylvania, a gentleman well known to the readers of GLEANINGS through his valuable contributions, and I was pleased to learn that Dr. Phillips had been appointed government expert in apiculture, and will at once sever his connection with the university to take up his duties as an associate of Mr. Benton. We also visited the queen-rearing nuclei where queens of various races are being reared, and found that every thing was being done with a degree of enthusiasm and intelligence that augurs well for the bee-keeping world.

A good many people have had the idea that Mr. Benton's position at Washington was a political sinecure, but the reverse is the case; and now after many years of effort on his part the Government has awakened to the importance of the bee-keeping industry, and from now on great things may be expected, and we may look upon the Division of Apiculture with its expert corps of workers as deeply interested in our success, and upon the apiary at Washington as our experimental station.

In the office I saw specimens of *Apis florea*, the tiny East India bee, also *Apis dorsata*, the giant bee of India, the workers of which race are as large as the queen bees of the blacks or the Italians.

I was glad to see that the bulletin issued by the U. S. Government, on "Bee-keeping," gives the lie direct to that artificial-comb-honey canard that is forever cropping out.

During my visit I found Mr. Benton very busy getting ready for a tour of investigation of Asia and the Orient, to be gone a year, in quest of new races of bees, and I have just received a letter from Dr. Phillips stating that Mr. Benton did start on June 3d from Philadelphia on the steamship Merion, and will not return until the summer of 1906, with colonies and nuclei of bees obtained in different parts of Europe, Asia, India, and the Philippine Islands. The journey carries him through some of the most dangerous parts of Asia, and one stage of the journey through Afghanistan is by camel caravan for nearly a thousand miles. The colonies that are secured this spring and summer in the Caucasus and other regions of Asia and India will be shipped to the south of France for the winter, and will be brought to this country the following spring by Mr. Benton after he has concluded his investigations in the Philippine Islands.

Upon looking over the prospectus of the Division of Apiculture for 1905 I find that much is now to be done, a copy of which is herewith printed.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
Washington, D. C.

WORK IN APICULTURE, FISCAL YEAR 1904–1905.

The purchase and fitting up of a model apiary of 50 to 60 colonies of bees to be used in experimental work, with small laboratory, work-shop, and implements, at Arlington Experimental Farm.

The introduction, testing, and dissemination of seeds, cuttings, roots, etc., of new and promising honey-producing plants.

The investigation of certain contagious bee-diseases, particularly the foul brood, or black brood, now devastating apiaries in the State of New York.

Investigation of the bees of the far East, particularly the large races known as the Giant bees of India (*Apis dorsata*, and *zonata*), found in East India and the Philippine Islands; also incidentally to investigate at the same time the possibilities in apiculture in the Philippines, and the probable benefits from the introduction of modern methods there.

The importation and testing in various portions of this country of breeding-queens of the Caucasian, Cyprian, Dalmatian, Italian, and Carniolan races.

A test of the employment of artificial heat in the wintering and rapid breeding up of bees.

Construction and testing of hives and accessories adapted to migratory or pastoral bee-keeping.

OFFICE AND OTHER WORK.

1st.—To collect data regarding apiculture in the United States.
  a.—As to principal honey-producing plants of the various regions.
  b.—As to losses of bees by disease and in wintering.

A GENERAL VIEW OF THE EXPERIMENTAL APIARY OF THE U. S. GOVERNMENT, AT WASHINGTON, D. C., IN CHARGE OF FRANK BENTON. PHOTOGRAPHED BY D. E. LYON.

c.—As to races now kept.

d.—As to proportion of frame to box hives now in use.

2d.—On the basis of these data it is proposed to map on outline-maps of the United States the areas of the principal honey-producing plants, and to determine where and what new plants could be disseminated for the purpose of increasing bee-pasturage.

3d.—The publication of a bulletin on pasturage for bees, the manner of increasing it, with cultural and other notes on new honey-producing plants; a bulletin treating of migratory or pastoral bee-keeping, and a bulletin on the best methods of rearing queen bees.

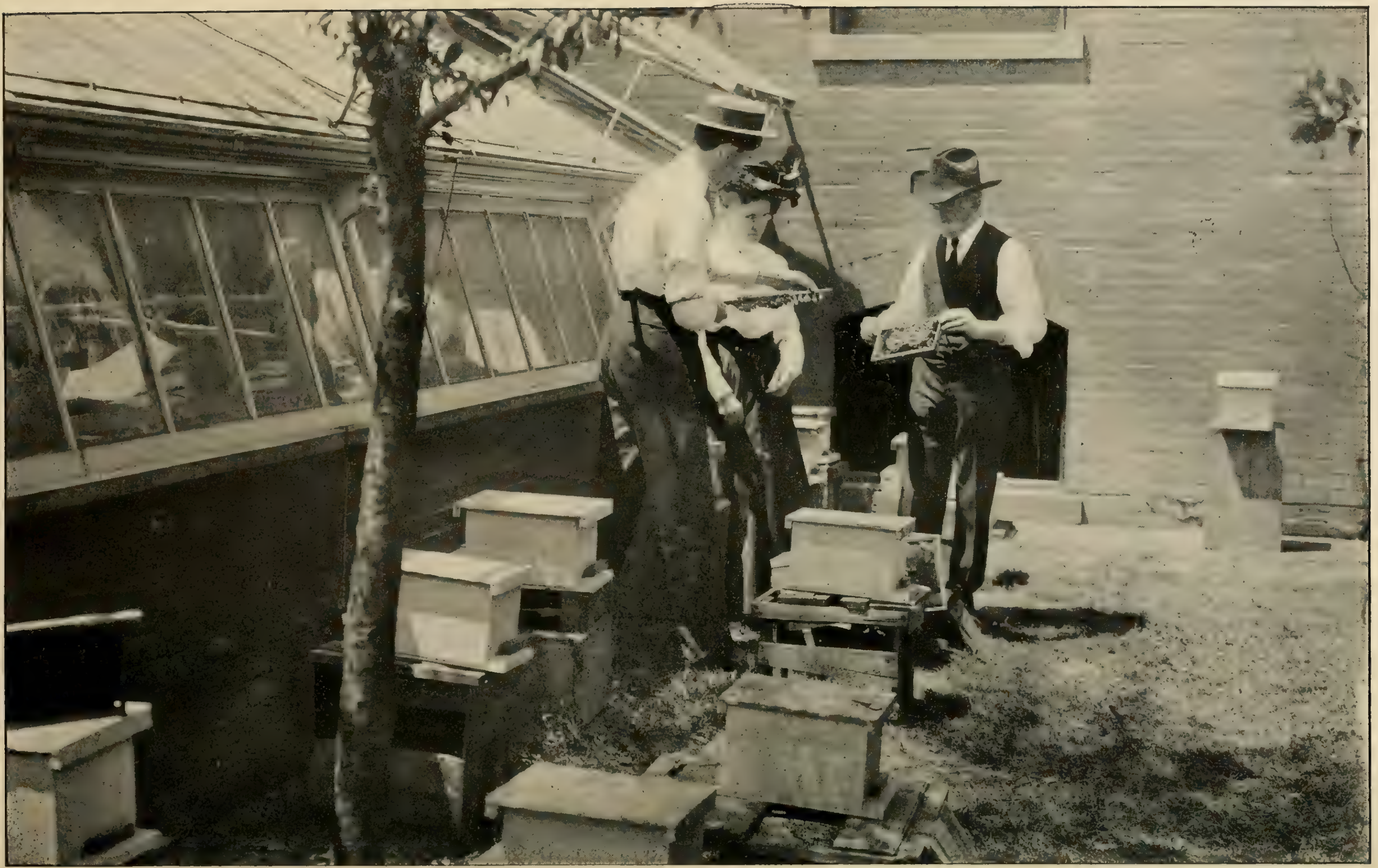
4th.—The beginning of a card index of apiarian literature.

5th—The beginning of careful studies to complete a knowledge of the life-histories of the various insect enemies of bees.

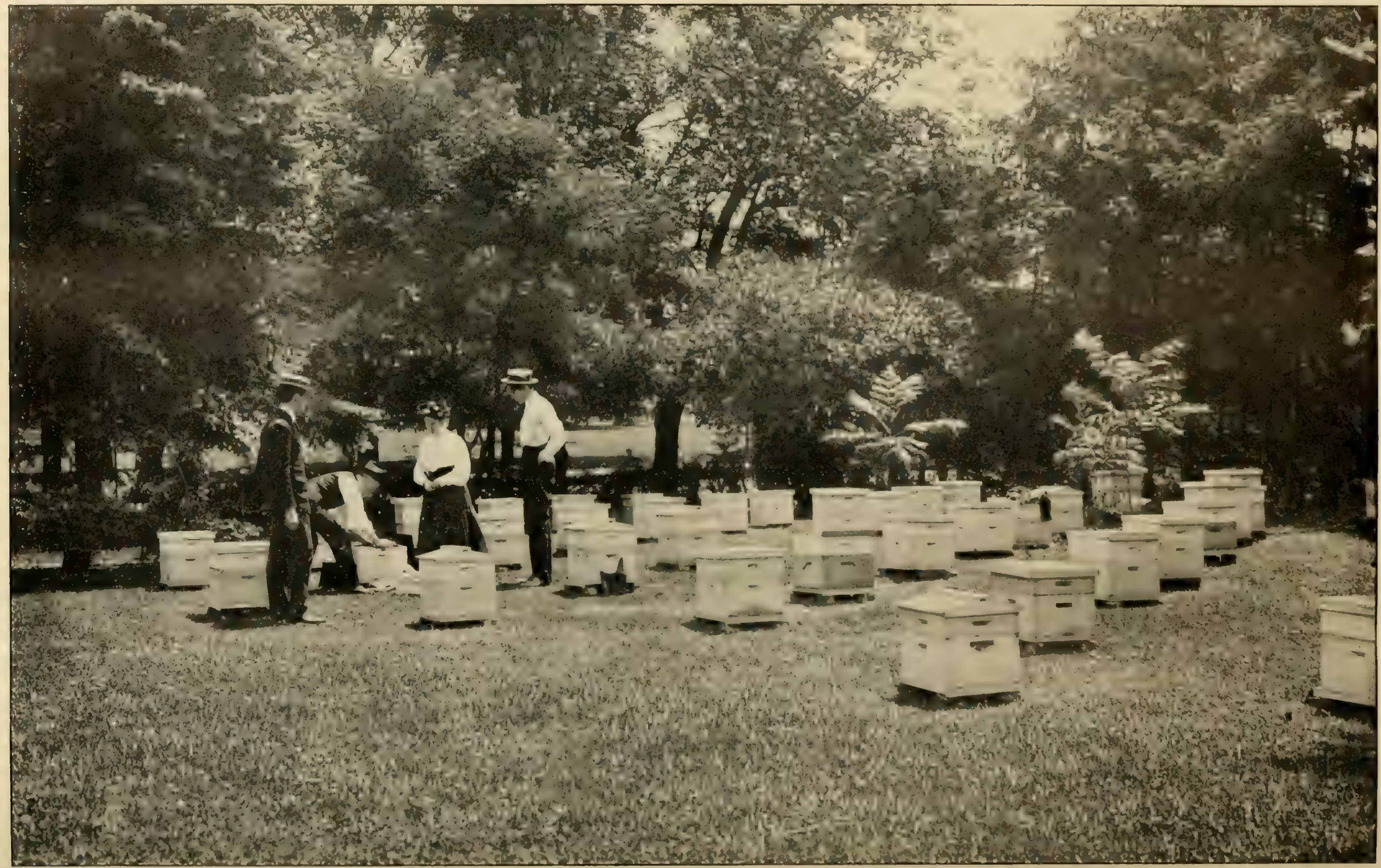
6th.—The rearing and distribution for the testing and introduction of fresh blood into different parts of the country of 300 queen bees of improved races and crosses.

When the writer took the train for home he felt that from what he had seen he could "bring a good report of the land" for the readers of GLEANINGS. The accompanying photos I took, which will be of interest to the bee-keeping fraternity.

A CORNER OF THE GOVERNMENT APIARY WHERE THE CAUCASIAN AND CARNIOLAN COLONIES STAND. PHOTOGRAPHED BY D. E. LYON.



MR. BENTON AND HIS ASSISTANT LOOKING OVER SOME CAUCASIAN QUEEN-CELLS.—PHOTOGRAPHED BY D. E. LYON.



THE GOVERNMENT APIARY OF CYPRIAN BEES; MR. BENTON HANDLING THE COLONY AND DR. F. F. PHILLIPS IN THE LEFT FOREGROUND.
PHOTOGRAPHED BY D. E. LYON.

MR. FRANK BENTON HOLDING UP A FRAME OF CAUCASIAN BEES. PHOTO BY D. E. LYON.

MANIPULATING HIVES FOR INCREASE.

Alexander's Plan Appreciated because no Brood is Lost; Unripe Honey Sours.

BY J. A. BEARDEN.

I have been reading GLEANINGS for a short time only, but I have not seen any thing therein that I think possesses as much value as the article on page 425, April 15, by Mr. E. W. Alexander. Now, what I consider the best thing in these manipulations is the fact that no brood is lost just at the very critical time, i. e., before the honey-flow commences; and you will find by trying his plan that, whenever all of the brood but one comb is placed above the excluding-zinc, the queen seeing nothing but empty combs and bees in plenty to care for brood are at hand, that she will just get down to her work of multiplying as far as her own home is concerned.

Now you can look at her combs on the fourth or fifth day after making a division of the brood-nest, or the excluding of the queen from her young bees in larval form, and see how much more she has done at egg-laying than usual, and then you will believe also.

Now, I have been trying his plan, and I was vexed at myself for not seeing such a plain and excellent way to do such work; and as I worked, I studied all about the plan; so when I received two valuable queens about that time, I just took some of this brood above the excluder that was all capped over to make up a colony of all young bees to introduce my queens into; and, just to think that, heretofore, a lot of brood would fall out of the cells! and now here all was nice and clean, and no loss of brood, no loss of queen, and the old colony now at this date (ten days after placing brood above the excluder) with a good lot of capped brood.

But I also tried an experiment on one colony, to which I had introduced a strange queen, as I followed the same plan as above, or the young hatching-brood plan; and as I knew I should lose the uncapped brood I waited until I could make one colony queenless and broodless for 48 hours, and then I took one frame of this queenless and broodless colony, with all the adhering bees, to my new-made colony with introduced queen, and placed them at one side of the hive furthest from the small bunch of young bees; for I almost forgot to say that this colony of young bees was made up on the previous day, and a small bunch of young bees had hatched out in the mean time. As I had the entrance closed with wire cloth and wooden plugs, these new bees were literally jailed up also; and as I was both quiet and quick at this work, these new bees just took to work for their new-found home and mother, and by the end of that day I had old bees at work feeding and watering brood as though they were their own sisters.

Now, by watching for your queenless and broodless colonies, and using them one frame at a time, you can be sure and safe in introducing them to hives containing a valuable queen.

Mr. Dan White gives us all the keynote to selling and keeping on selling to the same man, on page 650, and also tells us how to use his uncapping-knife on all combs that he extracts.

When I commenced to take extracted honey, some 18 years ago, I listened attentively to two bee veterans of fine education telling how they got into trouble. One said that he had got a new extractor, and every Saturday he would extract the week's crop of basswood honey, and bottle and send to town to his local grocer; and oh how he did make the change roll in! but after a while a sort of stop came in the demand, and his grocer friend sent him word to come and see his sour honey. He went, and found it soured, "and," said he, "it took me about ten years to get up my name again where I wanted it to be as an honest producer, and all because I had not found out that basswood would sour if extracted too soon after gathering. Now, I have just stepped in to sell only such honey as was capped over, or very nearly so, and now I have a good demand for all I can produce, and my guarantee is this: If this honey is not satisfactory, let me know and I will pay your money back in full, excepting such as you may have used of this can. I have never had to take back a single can yet."

Harms, Tenn., June 26.

OUTDOOR FEEDING.

The Plan Successful When Robbers are so Bad that Individual Feeding Becomes Dangerous; a Spray-pump for a Feeder.

BY W. L. PORTER.

Wishing to make a visit to Idaho this spring for about four weeks I went through all my hives in April to see that all had sufficient stores to last until June 1. On returning,. the first week in June, I found a part of my apiary had suffered very badly by being short of stores. Almost every green plant had been cut to the ground, including alfalfa and all wild flowers on which bees were gathering sufficient honey to live. With the wild flowers cut off they soon exhausted the honey held over in eight-frame hives.

I found the apiary a pitiable sight, the hives full of bees with not a drop of honey in sight, and the eggs and young larvæ all consumed by the bees. I had with me 20 gallons of feed—honey thinned one-half. By the time I had fed five hives I had the whole apiary upon me, and it looked as if the fed hives would be destroyed by the hordes of robbers. I soon saw that the only way to feed was by outdoor feeding. This I did by laying down hive-covers until I had a string about three rods long, and with the Deming spray-pump fastened to a ten-gallon lard-tub, which has a cover in which I cut a slot to pass around the pump. Around the tub a piece of burlap is folded to keep all robber bees out. I diluted the feed still more, and then went to work pumping a spray of the feed on the covers and into extracting-combs which were laid a few rods from the hives; and to induce all the bees out we burned a little honey. The bees came in waves; and when we had got to the end we soon could commence over again, as the bees would leave the boards when the honey was gone. I noticed hundreds of drones out helping themselves from the boards. It was the first time I ever saw a drone hustle for himself.

After a few hours of feeding in this way I could open any hive I wished, and pump directly into an empty comb and have no trouble with robbers.

Three days after, we visited them again, bringing with us a good frame of last year's honey for each one of the hives. Then we again set the pump to work, and sprayed some combs with thin granulated-sugar syrup, and were able to open each hive and place the honey in the center of the brood-chamber without interruption from robbers; and, to my great delight, at this time I found the combs again filled with eggs and larvæ.

THE SPRAY-PUMP AS A FEEDER.

The feeding of bees is not new. Outdoor feeding and feeding in the hive have been discussed over and over in the journals, but I have never seen a word about using the spray-pump as a feeder. It can be attached to a lard-tub or something similar, so a five-gallon can of feed can be turned in at once, and can be so fixed that a robber can not get in. It throws a spray that goes direct into the extracting-combs without any waste, so a comb will hold from four to five pounds. Turning the little lever on the end of the spray at a right-angle shuts it off so not a drop will leak.

It is a handy thing to have around to spray shrubs and trees for insect pests, and is handy to clean windows and buggies. I have used it to fill combs in the cellar, taking out a barrel of feed at a load, filling the comb one day and taking them out the next.

I have not tried the knapsack sprayer, but I am not sure but that it would be handy, as the bee-keeper could have the feed on his back when looking through hives and turning in whenever it is desired.

Denver, Colo.

[There are large possibilities in outdoor feeding; and where there are no near-by neighbor's bees, a whole apiary can be fed up far more economically than by the individual-hive plan. It is surprising how outdoor feeding will fix the robber problem. Our correspondents experience on this point is exactly ours.

So far as I can remember no mention has been made before of the spray-pump for outdoor feeding; but I would question the advisability of filling combs direct into thin syrup for a winter food. I should be fearful that the bees would not ripen the syrup as they should. Is it not a fact that all saccharine matter passing through the bodies of the bees is changed chemically so that is a more fit food for bees? If so, they should themselves put it into the combs.—ED.]

Heads of Grain
from different fields

EXPERIENCE WITH THE SIBBALD NON-SWARMING PLAN; COLONIES SO TREATED NOT AS SUCCESSFUL AS NATURAL SWARMS.

As you requested reports on non-swarming methods I will give you my experience in testing the Sibbald plan.

During May 13, 14, and 15, I had seven swarms come out. I hived them on starters, and four of them I placed on the site where the old hive stood, and moved the old hive to a new site, and three of them I placed beside the parent hive with the entrance in the same direction, and seven days later I moved the parent hive to a new site and put the new hive over where the old one stood.

On the 14th of May I found two hives with ripe queen-cells (I think they would have swarmed the 15th). I put supers containing partly finished sections containing a little honey on them, and the next day, the 15th, about 9 o'clock (I did not wait later lest they might swarm), I found the supers pretty well filled with bees, and I treated them according to the Sibbald plan for increase.

June 13 I inspected the seven hives that swarmed naturally, and their parent hives. I also inspected the four hives treated according to the Sibbald plan. I found the seven natural swarms all in good condition, and ready to receive supers. Of the four parent hives that I moved directly to a new site, two were in good condition, nearly full of brood, and a good deal of it capped. They were ready for supers; but one of them was queenless, and one was so weakened that they robbed it the next day after it cast the swarm. I stopped the robbing, but it lost nearly all of its brood, but on June 13 it was half full of brood, some of it capped over. It looked about like the Sibbald hives No. 1. The three parent hives that I left on their original stands until the 7th day after casting swarms were all in good condition, with plenty of brood, and ready for supers.

Of the four hives treated according to the Sibbald plan, none are equal in number of bees and amount of brood to those that swarmed naturally, and none are in condition to receive supers. One of them (a hive No. 2) cast a small swarm June 12, and they would not stay in a new hive. I examined the hive they came out of, and some of the queen-cells were bitten open. I shook them back into the hive they came out of, and they stayed.

I think the queen did not leave with the swarm, but stayed and got in her work on the queen-cells.

None of the hives that cast natural swarms cast after-swarms.

Parma, Idaho, June 15. F. A. POWERS.

THE WEATHER AND THE HONEY-FLOW; THE CAUSE OF QUEENS BALLING.

I have read carefully Mr. Crane's article, page 306, also the one by Mr. Classen, page 486. Our main flow this year was in just such a time as Mr. Crane described. I don't think that thunder has the same effect that he says it does. But we have a very sorry crop of honey, but more swarms than we have had in ten years. As to whether or not a dry season darkens honey, our best honey is made in a dry spring. When we have a wet time we always get a bad lot of honey. We have only amber honey, but some of it looks dark and smoky, and is always thin.

I want to ask a question. I hived a swarm with a clipped queen. The next day was rainy; but the next they came out, I put the queen back, but late that evening I found her dead. What was the cause? I hived one off a pine. As soon as they went in I moved the old hive and put a new one in its place. In a minute or two they came out and went back to the pine. I looked and found the queen balled. I put the ball in cold water. As soon as I could get the queen I put her back in the new hive. The swarm soon came back, and has been all right ever since. What do you think was the cause? As indicated above, about the only thing we got this year was swarms and robber bees. J. S. PATTON.

Havana, Ala., June 3.

[A swarm will very often ball the old queen, because there is a virgin present that suits its fancy more. It will, if it make repeated attempts to go off, and the queen as often fails to follow, because she is clipped, finally kill her. When the first attempt is made the swarm should be properly hived, and even then a virgin may come into the family with the result that the old mother is sacrificed. Or it may happen that a small swarm will unite with a large one unbeknown to the apiarist. There will then be some balling business going on in all probability.—ED.]

DO VIRGINS GO INTO THE WRONG HIVE BY MISTAKE?

Referring to your footnote to R. J. Melville's article, p. 609, regarding "mistakes made by virgin queens," I beg leave to argue that, in many cases, they don't make a mistake, for this reason. On May 23 I introduced a golden queen to a three-frame nucleus. Thinking that all was well, I noticed them but little afterward until July 1, when I was watching them, and was surprised to see a queen alight and run right in, which proved to be returning from her wedding-flight. On opening the hive or nucleus, which had been made up of black bees, I found that there were no eggs; but I found some capped brood and young bees by the hundred emerging, which were pure goldens. I wondered why they had superseded this queen, which was a young one, which I had just received from Arkansas. But I found to-day that the queen was not superseded till after she had deserted. I find her now in a colony of blacks, at least 40 feet from this nucleus, with thousands of young goldens already at work. She could not have come from another hive, as there are no other goldens within 50 miles of here. I can't understand just why she left unless crowded out for room. The swarm with which she found a home was hived April 22, and at that time had a queen that was apparently all right.

I think this instance will be a puzzler for that veteran bee-keeper Dr. Miller.

W. S. MCKNIGHT.

Newtopia, Ala., July 15.

[The instance cited does not really prove any thing either way. Our large experience rearing thousands of queens shows that virgins do get confused just as do young bees, and go into the wrong entrance sometimes. That a queen may *purposely* go into another entrance, is not denied. When a laying queen has filled all the available cells in a baby nucleus full of eggs, she is quite liable to leave for larger quarters, and the bees may or may not go with her.—ED.]

HOW TO WINTER A PLURALITY OF QUEENS IN ONE HIVE OUTDOORS.

I have several large observatory hives and also a lot of small ones as nuclei, where I keep queens for future use. I have also several ten-frame hives with screen divisions in the center—a queen on each side—and wintered them on the summer stand without any loss. When I need a queen in the spring I take one out of one side, then remove the screen division. This method has proven to be very satisfactory. I am not sure whether any one else has ever done this for keeping queens for spring use; but I would recommend every one giving it a trial, using, of course, a chaff hive. It has taken a lot of time, labor, and study, but I now look with pride over my apiary, and believe I have as well-equipped and up-to-date one as there is in the country.

WM. REIBER.

Spring Mills, Pa., July 12.

[Where you speak of "screen divisions in the center," you probably mean several wire-cloth division-boards that reach from end to end, and top to bottom of the hive, running parallel with the frames. You do not say whether you have more than one frame in a division. Attempts have been made to keep queens in this way, but I think have generally resulted in the loss of nearly all the queens. A second attempt on your part might not prove so favorable. Better results would be secured in a good dry cellar on the same plan instead of outdoors. If any one else has tried this or any other plan for keeping queens over winter that has worked successfully, we should be glad to have him report.—Ed,]

GIVING A QUEENLESS COLONY A QUEEN-CELL WHEN FOLLOWING ALEXANDER'S METHOD OF INCREASE.

On page 606, W. H. Crawford wishes to know if any have tried giving the queenless colony a ripe queen-cell in trying the Alexander method of increase, page 425.

At swarming time I took a colony with a queen-cell and put the queen and a frame of brood in an empty hive-body, with drawn combs, with a little honey in them from last year. I put this on the bottom-board; on top of this a queen-excluder, then the rest of the brood with the ripe queen-cell on the queen-excluder. After eleven days I put the top body with brood and queen-cell on a bottom-board in a new location, the same as when increasing by nuclei. The queen hatched and is laying. The colony is working finely. F. G. Ralph.

Hyrum, Utah, June 12.

[Your results will be better, I feel sure, to put the laying queen in the new hive below, as recommended by Mr. Alexander. If, for some reason, this is not practicable, you can give cells as described.—Ed.]

WHICH ONE OF THE FIVE SENSES WOULD ACCOUNT FOR THIS?

I see in the April issue that J. W. Porter, M. D., of Ponca, Neb., asks questions about the five senses. The first part of this month I bought two colonies of hybrids, and they were in common cross-stick hives; so the first thing was to transfer (for if I owned only two colonies of bees I would have them in proper quarters). But I transferred them, and they seemed to be all right, so they were not near any other colonies, so I just cut out the good honey, and the brood comb was so dirty I came to the conclusion I would let the bees carry out the honey. I set the old hive a little distance from the new one. One of my colonies did not like their new quarters, so they just picked up and left me, and the two old hives remained there about five days. After the colony left I noticed some young bees crawling from the old hive to the one that was vacated, so I went to investigate and found about a pint of young bees and no queen. I had no queen to give them, so I supposed they would die; but I watched them, and on the 9th day they also went to an unknown place. Whether they followed the original colony or not I can not tell, but rather think so. The other young bees went to their hive, and they were within 18 inches of one another, and they never made a mistake.

Dayton, Wash. C. W. Curteman.

[The young bees hatching from the brood in the old hive were probably attracted to the new hive, formerly occupied by their older sisters, by the colony odor. But it seems a little strange that they should desert a hive that must have had some brood left, and having the same colony odor, for one having no brood. Perhaps the new hive had a *fresher* odor.

It is hardly probable that the first lot of bees followed the second lot.—Ed.]

A GOOD SUGGESTION ON INTRODUCING.

So many inquiries are made for a safe method of introducing queens by parties responding to my recent offer of queens for sale in Gleanings that I forward a plan I have followed most successfully during the 35 years I have been engaged in bee-keeping. Place the queen you wish to introduce in a cage with a dozen *young* bees from the colony to which she is to be introduced, and place the cage in position in the hive, immediately upon the removal of the queen whose place she is to take. A provisioned cage is best, though an unprovisioned one will answer. Getting acquainted with strange bees is often more reason for bees refusing a queen than any antipathy to herself. I find very few colonies object to a queen introduced in this manner. Indeed, most of them fail to realize that they have been queenless at all. My loss does not exceed one or two queens out of a hundred, even under unfavorable conditions. B. F. Averill.

Howardsville, Va.

[Your suggestion is excellent. It has been mentioned before, but like some other good things has been overlooked. It would not be practicable for a beginner to apply it.—Ed.]

LAYING WORKERS AMONG HOLY-LAND BEES.

According to the A B C, laying workers are apt to turn up "wherever the bee-keeper has been so careless as to leave his bees destitute of either brood or queen for ten days." I made a colony of Holy Lands queenless and broodless; left it so four days, then gave it a frame of eggs and larvæ to build queen-cells. To-day, eight days since brood was given, I found eleven cells sealed, and laying workers busily at work. In some cells (all worker) they have deposited half a dozen eggs. I caught one in the act of laying, killed and examined it, and found it had only one more egg. So laying workers may also appear where unsealed larvæ are present. This case may, however, be an exception to the general rule.

J. G. Baumgaertner.

New Memphis, Ill., July 11.

[With ordinary Italians you would not be liable to find laying workers under, perhaps, a month of queenlessness. The same would be largely true of hybrids and blacks. But with the Eastern races, especially Holy Lands, laying workers might appear within two or three days, but usually not for about a week. The case mentioned is not unusual, even with unsealed brood. When we were rearing the Holy Lands extensively we had to be extremely careful not to let a colony be queenless very long.—ED.]

OUR HOMES,

BY A. I. ROOT.

On page 556 I mentioned one of the papers read at the Congregational conference at Chatham, Ohio, and said I hoped to give it a place on these pages. I take pleasure in presenting here a paper by Dr. Leonard, "What we Owe to the Young."

Suffer little children to come unto me, and forbid them not.—LUKE 18:16.

Jesus said to his disciples, "Suffer the little children to come unto me, and forbid them not." In the Greek original the phrase "little children" has a meaning broad enough to include the young of all ages, all who have not attained to adult years. He seemed to want them in particular, them more than any other class. If any are to be hindered, let it not be these. Paul expressed the conviction that he was "debtor to all," that is, was under obligation to do his very best for everybody, and counted it his great business in life to pay that debt. Just so it is with us all. But the present consideration is the obligation we are under to benefit the young, to hinder them in nothing, in every thing to help them to be their best selves; how we are to regard them; what treatment we shall accord, as individuals, as communities, in connection with church life.

Well, certainly they have rights, claims upon us, which are most sacred, and hence are to be safeguarded and kept inviolate always and by all. Once it was only kings and nobles to whom such privileges were accorded; later to all men, if white; later still to blacks as well; and, finally, women's rights are asserted far and wide; and we even hear of the rights of brutes, cruelty to animals being counted a crime. Nevertheless, it is much to be feared that not many have learned to put the rights of children, little children, the young of every class, in the forefront of thought, of solicitude, of planning, and of daily endeavor.

It may not be amiss even to suggest that the little ones are not to be esteemed nuisances, encumbrances, dead weights, loads for adults to carry, torments, necessary evils, costing tremendously but making no returns for the expenditure required. Of late, reports come from the cities that, from certain flats and apartment houses, all married couples with children are rigidly excluded. In homes not a few, babies and troublesome tots are unwelcome; in more, they are scolded and cuffed on frequent occasions, while in very few are they rated at their full value, accounted the very choicest treasure the home can contain. But a house without boys and girls in reasonable numbers among the occupants is most scantily and miserably furnished at the best. "So distractingly and everlastingly noisy," you say. Well, a desert is quiet to perfection, as is also the grave; but for all that, they are deemed good places to be shunned. The young pay their way from first to last, and much more. They give to their elders far beyond the utmost they receive. In many ways they constitute the most important portion of the population. Upon them the future of society almost wholly depends. They keep us young, they help wondrously to hold us back from becoming altogether selfish and sordid and earthly. When we cease to love them, to hold them in reverence, and lose the disposition to minister to them in every way possible, it is high time for us to take our departure from earthly scenes.

How solemn are our Savior's words, though their full signification we may not be able to fathom! "Whosoever shall cause one of these little ones to offend [i. e., tempt, cause to stumble], it were better for him that a millstone were hanged about his neck, and that he were drowned in the depth of the sea." And these: "Take heed that ye despise not one of these little ones; for I say unto you that in heaven their angels do always hold the face of my Father." Is it, then, too much to affirm that the young are entitled to the best, the very best, of our thought and planning and daily endeavor?

And what do we owe them? Well, among other things, good homes, healthy bodies; minds enlightened and trained by education; hearts swelling with noble desires. We owe them daily examples worthy of imitation, surroundings in which good influences greatly predominate. It is with their welfare especially in mind, primarily for their sakes, that we are to handle the liquor question, the tobacco question, the amusement question, dancing, cards, etc.; with supreme reference to them rather than to our pockets, our convenience, to suit the business men, or the politicians. Good schools should be theirs, of course, with the best teachers to be found to lead and inspire; the very best of men and women, though such may cost more. Our children are worthy of the utmost we can bestow.

As churches and pastors, what do we owe the young? How shall we carry ourselves as touching them, their needs, the boundless possibilities of good, of evil also, which reside within them? To begin with, our theological seminaries have a priceless opportunity, a solemn duty, at this point, to impress it upon the students that their ministry, whether in connection with preaching or with personal work, is to be aimed, not at grown folks so much as at the younger half or two-thirds of their parishioners. In the sermon, both text and treatment, whether introduction, illustrations, or conclusions, the preacher ought to be supremely mindful of Christ's little ones. "Feed my lambs," he said to Peter; and only after that, "Feed my sheep." Even five-minute sermons, though better than nothing, will not at all suffice with thirty or forty minutes devoted wholly to those who are old enough to feed themselves. The Master's teaching was commonly such that the boys and girls could readily catch at least something of his meaning, relating as it did so often to natural objects and every-day themes, the birds and flowers, and so often taking the form of stories. It is neither Christian nor sensible to serve a feast to adults twice a Sunday, a hundred times a year, with only now and then a crumb cast to the children. If need be, rather let the process be reversed.

We hold annually our State ecclesiastical gatherings; twice a year we assemble in our local conferences; but how seldom, how almost never, with this as the theme of discussion—"The welfare of the rising generation—what shall be done to enhance it, and how shall we go about the performance of the supreme task?" Yes, and the farmers meet every now and then to discuss soil and stock, cattle and swine, grains and vegetables; how to banish the pests which destroy the crops, and how to secure the largest and best returns for labor expended. But who ever heard of a gathering, whether of men or women, saints or sinners, to consult how to produce, out of the crude beginnings known as infancy, the finest possible crop of boys and girls, husbands and wives, fathers and mothers, of the highest type of citizens and patriots? And the suggestion is most pertinent that, if such assemblies were to be held, the supreme question considered should be, not how to cure or remove the plagues which afflict human nature and human society, bring enduring and deadly blight to character; but, rather, how to prevent them, or at least reduce the damage to a minimum. Better a fence at the top of the cliff than a hospital at the bottom.

Well did Jesus put the query, with more than a touch of sarcasm, "Is not a man better than a sheep?" To be sure, at this point something has been done in our churches in recent times which was hitherto unknown, in the Sunday-school and Christian Endeavor Society, and through Decision Day, etc., but even yet we come far short of our privilege, our duty. In almost every part of every religious service, whether it be Scripture-reading, prayer, song, or sermon, adults are almost wholly in mind. Revivals in which hoary-headed sinners are converted, transgressors who have reached or passed through middle life, are held in far higher esteem than those which simply gather in the ten or twelve year-olds, or those not far along in their teens. But Jesus said, rather, "Suffer the little ones to come unto me."

"Heaven lies about us in our infancy." ought to be so, and may be so, that our children shall almost literally step from the cradle into the kingdom. Surely, wandering long and far, with highest interests in continual jeopardy and eternal loss easily possible, with return not likely, a mere perhaps—surely this is not God's way. Rather we owe it to the young to take them early by the hand, to point out the path of life, and lead them lovingly into the Christian way. Whatever truth the doctrine of total depravity may contain, and the necessity of a new birth, it yet remains that, in an important sense, it is as natural and easy for a child, under favorable circumstances, to begin a life of love and obedience and service—that is, to master the A B C of right living, as it is to walk or talk, to read or write. Practically our children are as clay in our hands, to be molded into any form, be it fair or unsightly. Let us rather say, as plants to be trained, trellised, protected from frost and blight and pests such as child flesh is heir to. Jesus said significally, "Suffer the little children to come unto me, and forbid them not." They are ready and willing—that is, see that you do not block the way. Therefore, parents, individual Christian men and women, pastors, and churches, have no higher calling, no more exigent business on hand, summer and winter, and all the year round, than to see that, so far as possible, all hindrances shall be removed, and every help possible shall be supplied. Besides, every church should maintain a standing committee for this express purpose, composed of the choicest men and women, the very pick of the flock.

Our denomination is derelict beyond many at this point. We have something to learn from Episcopalians, Lutherans, and even Roman Catholics, who keep on hand classes of catechumens in training for confirmation time, though their process may be much too purely intellectual in character. Every pastor ought to be watching constantly, and every now and then gather the most hopeful cases for instruction designed to lead up to a public confession of Christ.

And, further, when the supreme choice appears really to have been made, and the child has been received to church fellowship, it is by no means to be imagined that the end has been reached, but, instead, that only a hopeful beginning has been made, and so unremitting watch, care, wisest Christian nurture must be bestowed. After being born, the "little one" is to be kept alive by systematic feeding and exercise. Ostrich culture is cruel and wicked. If neglected, the new-born are at least as likely to die as to live. First of all, good examples are needed for their guidance and inspiration, in the home every day and elsewhere. Nor is there a nobler motive to a life truly Christian for the older members than that of thereby strengthening the youthful disciples. Beware lest you cause one of these little ones to stumble! They are to be helped to become disciples and servants, toilers, to seek not merely to be saved, or to be happy, but, rather, to be useful, to serve God and man. They must be aided to find and fill each one a place in church life and work. Satan still finds some mischief for idle hands to do. Let responsibilities be put upon their shoulders. In the choir, the Sunday-school, the prayer-meeting, to serve as ushers, collectors, deacons, clerks, trustees, etc., to serve on committees. It is a mistake to keep every thing in the hands of the older half of the membership. Rather systematically work in the new recruits.

In particular, teach the young to begin early to bear their full share of the financial burdens, whether for home expenses or benevolences. From the cradle instruct them to earn, save, keep in store, the pennies, nickels, dimes, dollars, and in part in order that they may have whereof they may bestow. Teach them the duty of stewardship. Too often the children are esteemed financial nobodies, nonentities. But childhood and youth are the chosen time in which to begin to form all good habits, with systematic giving prominent among the virtues. If this is omitted from early life, it is almost certain never to appear, at least to have an existence but stunted and sickly at the best.

NOTES OF TRAVEL
BY A. I. ROOT.

THE CABIN IN THE WOODS IN AUGUST.

When Mrs. Root and I reached here, July 27, we found every thing almost out of sight in the weeds and tall grass. When I was last here, about April 1, I hoed around all the fruit-trees, cut down every burdock, mullein, and thistle I could find, and had things in pretty good shape; but after about four months' absence, nature had done a pile of "asserting." Partly under the doorstep, and right in front of the door (see page 658, June 15), a huge burdock had shot up until it was higher than I could reach, by actual measure; and as it almost closed up the doorway my first job was to get it down. It took several smart blows with the ax to make it "let go." I am sure there was no sign of a burdock at that spot when I left in April; but now, "fowls" might easily have "roosted in its branches." I mention this to show the wonderful fertility of the soil around here, especially when newly reclaimed from the woods. After the burdock "tree" tumbled over I noticed the red-cheeked Hale's Early peaches right before the door. A part of the fruit should have been thinned off in June; but they are now so nearly ripe we have decided to do the "thinning" as they begin to get mellow. Close around the back door, down among the weeds, I found my eight currant-bushes, all different. They were bought of Storrs & Harrison, Painesville, O., in April, 1903. A little nervously I parted the grass and weeds around the one near the kitchen door (Fay's prolific), and as I did so I called out: "O Sue! just look here at our treasures."

Notwithstanding the weeds, the little bush was fairly loaded with the largest and most luscious currants I ever saw. The next bush is Pomona, not so large a berry as the Fay, but the bunches are large and long, and the lower part of the bush was one huge cluster of dead-ripe currants. Then came the White Grape, also a mass of fruit, and much sweeter than any of the red currants. The Cherry currant is so much like the Fay I can hardly tell one from the other. Versailles is small, but has a peculiar flavor that makes it a general favorite. Wilder and Red Victoria are two splendid currants; and last but not least, if you have a currant garden* you want Black Victoria. I know a good many say they can not bear *black* currants; but it is because they have not acquired a taste for them. If you could sample one of Mrs. Root's English-currant puddings I think you would agree with us that they are a splendid fruit. Ours here are the largest and finest I ever saw. From one small plant set two years ago we had enough fruit this year to can. But this is a berry region around here. As usual our woods are full of raspberries. You can hear the happy voices of women and children almost daily as they come in crowds, and go home with filled pails, and I am always glad to welcome them, as it seems too bad to have such luscious fruit ripen and fall on the ground for want of some one to pick it. Red-raspberry shortcake, made with buttermilk that we get of the neighbors, *I* think is a little ahead of even strawberry shortcake, so much talked about. It is true we are miles away from the butcher's; but our neighbors grow string beans and sweet corn for the canning-factories, in Traverse City, and the former are certainly the best I ever ate. The factory furnishes the seed. The growers don't know the name. A single lake trout has supplied us for the last three days; and as Mrs. Root cooks it I think it quite equal to the famed black bass.

It is quite the fashion around here for the farmers to take "a day off," and all hands, big and little, "go huckleberrying," and so we have had plenty of the latter berries also.

Our expenses here in the cabin are not as much for a whole week as they would be for one day in a "resort hotel," yet our bill of fare is, to my notion, away ahead of any thing I ever found at any hotel.

The paths Mrs. Root and I made through the woods last fall in different directions to the different neighbors, we found considerably grown up, clogged with fallen dead branches, etc. Last evening we had quite a tramp after supper over to our friends the Hilberts. As it was between three and four miles, up hill and down, mostly through the woods, Mrs. R. got pretty tired, so I went ahead and cleared the pathway for her. Had we both been in our "teens," instead of past 60, it might have been very pretty to tell her it was going to be my happy privilege through life thus to make *her* pathway a little easier for the tired feet, and may be I *did* say something of the kind to her over forty years ago. But, dear reader, I can say it *now* with twofold more emphasis than I said it then, and God intended it should be so when he pronounced his blessing on the marriage relation.

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*I find currants, especially the improved red ones, a delicious substitute for lemons in hot weather. When I am tired and thirsty I greatly enjoy sitting on the soft grass beside a bush and picking cluster after cluster until I am refreshed and satisfied with something tart. It is cheaper, and incomparably more wholesome, than any artificial acid to be bought at the soda-fountains, or in the shape of any other "soft drinks" that cost money.

Coming through the woods to the cabin, when it was almost dark, reminded me of the words in that Gospel Hymn:

Let us find our sweetest comfort
In the blessings of to-day,
With a patient hand removing
All the briars from the way.

Don't give *me* too much credit, friends, for I well knew, when I was at work at it, that Mrs. R. would, in a similar way, pay me back many fold for all my pains, and I suspect that is about the way with the wives and mothers the world over. Divorces would never be heard of after the children are grown up if the Holy Spirit were allowed to lead in the home.

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again.

This same idea may be carried out with our neighbors, only it will, of course, require more faith, perhaps more self-sacrifice.

We have no automobile here, and, for that matter, no horse and buggy. We must do our visiting and going to church and Sunday-school on foot. The question came up, "Who are *our* neighbors?" I answered it: "Everybody — at least everybody within walking distance in any direction." And, dear friends, we have found much happiness in getting acquainted, and so have found some of the kindest and *best* neighbors anybody ever heard of.

On p. 658 (June 15), just above the front door to the right you will notice a cluster of small maples. Here is where our hammock swings, and it not only affords a beautiful view of Grand Traverse Bay, but during the hottest day in July or August you are sure to find a cooling breeze up there to fan you to sleep when you are tired and need rest. If it doesn't make you think, "Praise God, from whom all blessings flow," you are in a bad "frame of mind."

Basswoods are now just in full bloom—just about a month later than in Ohio. This morning the whole woods was fairly perfumed with them, and the bees were making such an uproar I could find a basswood-tree every time by pushing out into the bushes where I heard their loud humming.

By the aid of the hoe, scythe, sickle, and lawn-mower, we have made the cabin once more presentable; and *we* think that it and surroundings are not only "a thing of beauty" but it looks as if it might be "a joy for ever" to somebody. Every married couple ought, at least once in their lives, to start and build up a "home in the woods."

HIGH-PRESSURE GARDENING

BY A. I. ROOT.

THE IMPORTANCE OF TILE DRAINAGE.

Thousands of dollars, and I don't know but I might safely say millions, are lost, wasted, and thrown away every year for lack of a little investment in tile drainage. As you ride over the country and look over the fields you can see the yellow spots, and the spots where there is no crop at all, just because of a surplus of water. It is true you may not get your money back on the first crop (this sometimes happens, however), but farmers generally go through the motions of raising a crop year after year all their lives, without getting even half a yield where they might have had a full stand all over the field just by getting rid of the surplus water; and when it is once done it is done for a lifetime or more.

A very valuable bulletin has just been issued by the New Hampshire Experiment Station in regard to tile drainage. From it I copy the general summary below. My experience is that it is orthodox in every particular.

Pole, slab, and stone drains have been superseded by the modern tile drains. The use of tile is becoming more and more extended every year.

The effects of tile drainage are that the surplus water is removed from the soil; the soil is better ventilated; roots are given more room; the soil is made warmer; the available moisture is increased.

The size of tile will depend upon the fall and the area drained. For mains, 4-inch, and for laterals 3-inch will usually be found most satisfactory and economical. In laying drains get all the fall possible.

For clay soils drains should be about 2½ feet deep and 35 to 50 feet apart. For porous sandy soils they may be 3½ feet deep and 60 to 100 feet apart.

Select the lowest ground for the main. Have as few outlets as possible. Put in laterals through the wettest places first.

If the fall is slight, have it accurately determined by a competent surveyor. In other cases the ordinary carpenter's or home-made water-level may be used.

Begin digging at the outlet. Make the ditch just wide enough for the man to work in. Be sure the bottom is properly graded so that no low places are left in it.

Round tile—hard burned, free from lime, straight, smooth on the inside, and with ends square cut, are the best.

Place very hard-burned tile next to the outlet. Use Y's for making all connections of laterals with mains.

In filling the ditch, cover the tile first with loose dirt or sand. The plow may then be used to advantage.

The classes of land in New Hampshire needing drainage are, (1) meadow lands; (2) gently rolling tillable lands; (3) lowlands around swamps or lakes; (4) lowlands adjacent to salt water.

Thorough drainage on most lands will cost $35 to $40 per acre. Many lands can be greatly benefited for $15 or $20 per acre.

Those wishing the bulletin should address the New Hampshire Experiment Station, Durham, N. H. I think it might also pay you to have our book, Tile Drainage, 40 cts.

THE CONSTRUCTION OF SILOS.

The above is the title of a beautiful little bulletin of 41 pages, issued by the Illinois Experiment Station, Urbana, Ill. It is beautifully illustrated on almost every page with photos of silos in actual use, and must be of immense benefit to any progressive farmer. I clip from the summary the following:

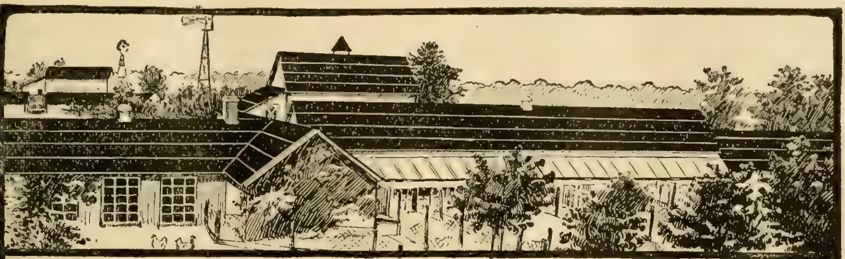
> ESSENTIALS OF A SILO.—To preserve the silage perfectly the silo wall must be rigid and air tight.
>
> LOCATION.—That the labor of feeding may be reduced to the minimum, the silo should be placed as near the manger as possible.
>
> FORM OF SILO.—It is practically impossible to construct a square wood silo with rigid walls; and as silage usually spoils more or less in the corners, it is perfectly clear that the round silo is the only proper form.
>
> PROPORTION AND CAPACITY.—The deeper the silo the greater the pressure and the more compactly will the silage be pressed together. To be well proportioned, the height should not be more than twice the diameter.

By the way, in traveling through the country on the auto or in the cars I have often remarked that, whenever you see a nice farm, there is a good silo among the buildings; and whenever you see a nice up-to-date silo you will see a beautiful farm well kept up. If you want the bulletin, address as above.

SWEET CLOVER—WILL FARM STOCK EAT IT?

There are still not only individuals but some agricultural papers that answer correspondents to the effect that no farm stock will eat sweet clover. See the following:

> *Dear Sir:*—I have sown sweet clover in a small way several times, but my sheep (about 100) always eat it so close that it dies. I will try to keep the sheep off.
>
> Dutch, Va., July 3. W. C. JACKSON.



HERE'S A PAROID ROOF,

"The Roof That Lasts."

The Monmouth Poultry Farm, Freneau, N. J., one of the largest in the country, sends a photograph (see above) showing their Paroid roofs. They like it and so do thousands of poultrymen, the large ones and the small ones, because they found that for roofing and siding, nothing in the world equals

PAROID ROOFING.

Economical, durable, extra strong, light slate color—contains no tar—does not run nor crack—does not taint rain water. Any one can lay it. Keeps buildings of all kinds warm and dry; spark, water, heat, cold, acid and gas proof, in short it's just the roof you're looking for. Now, don't be put off with a poor imitation, but

Send for Free Samples and name of nearest dealer. Investigate its merits for yourself. For a 2 cent stamp we'll send new book of complete plans for poultry and farm buildings.

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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—To exchange 8-frame hives, extractor, and uncapping-can, for honey. Root's goods.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—To exchange Barnes combination saw, almost good as new, for best alfalfa honey—comb or extracted. W. W. MCNEAL, Wheelersburg, O.

WANTED.—To buy colonies of bees. State price and condition. F. H. FARMER,
182 Friend St., Boston, Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED. — Honey in any quantity. State price, quantity, and quality. JUDSON HEARD,
110 South Forsyth St., Atlanta, Ga.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—To correspond with parties in New England States or elsewhere where there are prospects of a large crop of winter apples. Also a good typewriter for sale or exchange for honey.
F. W. DEAN, New Milford, Pa.

WANTED.—Every bee-keeper to act as subscription agent for the *Rural Bee-keeper* at the coming State and county fairs. Write for particulars.
W. H. PUTNAM, River Falls, Wis.

WANTED.—To exchange one 288-egg and one 120-egg size Von Culin incubator for honey or cash. Also mismated queens at 20 cts.; 30 hybrid queens at 15 cts.; full colonies of bees in eight-frame hives—gable covers, Danz. bottom, $4.50 this fall—young Italian queens and as many bees as can be safely shipped.
A. H. KANAGY, Milroy, Pa.

WANTED. —A renter for a water-power bee-hive factory; complete equipment.
W. H. PUTNAM, River Falls, Wis.

WANTED.—Complete issues of the *American Bee Journal* for the years 1881 to 1892 inclusive; also the years 1895 to 1899 inclusive. Parties having same will please state lowest price at which they can furnish them. A. L. BOYDEN, Medina, Ohio.

WANTED.—To lease 800 or more colonies of bees in Cuba, by three practical bee-keepers; references given. Address J. B. STODDARD, Encinitas, Cal.

WANTED.—Bees on shares for this winter; prefer Islands or Mexico. References: The A. I. Root Co., Medina, O., or O. P. Hyde, Floresville, Texas.
MAURICE C. ENGLE, Floresville, Texas.

WANTED.—Photos for GLEANINGS prize contest. Closes Sept. 1. For full particulars see Special Notices. THE A. I. ROOT COMPANY, Medina, O.

WANTED.—Agents for GLEANINGS at all county and State fairs. $20.00 in cash prizes for largest lists obtained, besides our regular liberal commissions for each subscriber secured. See advertisement on page 848. THE A. I. ROOT COMPANY, Medina, Ohio.

WANTED.—To exchange one Edison phonograph with fifty records, for bees; cost $50.00; guaranteed all right. Write what you have to offer.
F. W. SAMPSON, Littleville, Mass.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

WANTED.—Names of all bee-keepers and others who will join our carload of bee-keepers to attend the National Bee-keepers' Association, at San Antonio, Texas, Oct. 30. Excursion rates from Chicago to San Antonio and return over the Rock Island, $20.00; St. Paul to San Antonio and return via Chicago, $27.00. For further particulars address
W. H. PUTNAM, River Falls, Wis.

Help Wanted.

WANTED.—A bee-keeper to take charge of two bee-ranches on shares. A good proposition for right man. LESLIE BURR, Casanovia, Havana, Cuba.

For Sale.

FOR SALE.—White-clover comb and extracted honey; new crop. R. S. CHAPIN, Marion, Mich.

FOR SALE.—Famous O. I. C. and Duroc Jersey pigs of early spring farrow; also six handsome Scotch Collie puppies. JNO. M. WHEELER, Winchester, Ky.

FOR SALE.—Full colonies of leather-colored Italian bees at $4.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Italian bees and queens. We make one, two, and three frame nuclei a specialty. Write for circular and price list. Also, 100 T supers for sale cheap. O. H. HYATT, Shenandoah, Page Co., Iowa.

FOR SALE.—The busy man's method of rearing the best queens; saves brood, time, and patience: rears queens under the swarming impulse. Can you afford to be without it? Price 25 cts. See ad. elsewhere.
E. H. DEWEY, Great Barrington, Mass.

FOR SALE.—Second-hand 60-lb. cans. Guaranteed to please at 35 or 40 cts. per case of two cans each.
A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. HILDRETH & SEGELKEN,
82-84 Murray St., New York City.

FOR SALE.—My apiary consisting of 98 colonies, 250 extra hives, 200 extra supers, and smaller supplies, worth $1100, for $800; good location.
E. F. READ, Arvada, Colo.

FOR SALE.—100 two-frame nuclei of Italian bees with warranted purely mated five-banded Italian queen, $1.65 each; on Danzenbaker frames. This is a bargain.
W. L. WOMBLE, Raleigh, N. C.

FOR SALE.—Italian and red-clover queens; 40c each; $4.00 per dozen. Safe arrival; will continue until Nov. 15. R. O. COX, Fort Deposit, Ala.

FOR SALE.—Comb-foundation business located in Denver. Fine situation with full equipment for the Weed process. Price $1000. A most excellent opening for the right party. If interested write for full particulars. THE A. I. ROOT CO., Medina, Ohio.

FOR SALE.—Two hundred colonies of bees.
L. L. SOUTHMAYD, Lovelock, Nev.

FOR SALE.—We offer, for the first time, queens which produce beautiful bees. You never will be sorry if you try one of our beauties. Untested, 75c; tested, $1.00. Choice strain of leather-colored queens at same price.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—Paradise for bees; 320 acres of good land 1½ miles from Mercury, McCulloch Co., Texas; good farming and fruit country; 60 acres in cultivation; small two-room house; good well on place, and flowing water half mile away; terms easy. Write for particulars.
EDW. SCOGGIN, Carlsbad, N. Mex.

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about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

ELECTRIC STEEL WHEELS
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By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

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Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here's something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
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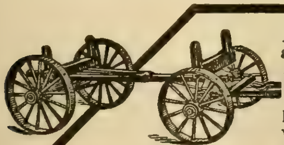

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soon earn their cost on any farm.

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for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to
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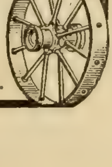

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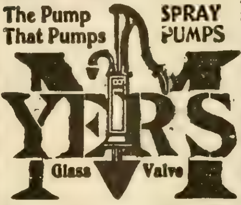

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of all kinds. Write for Circulars and Prices.

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with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
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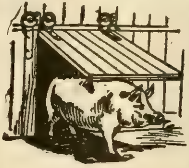

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then add other dollars as you can spare them. Deposits can be sent by Postoffice or Express Money Orders, Check on Local Bank, New York Draft, or Currency by Express or Registered Mail. Your money will earn

4 PER CENT Interest,

compounded semi-annually, and will be secured by assets of over ONE HALF MILLION.

The SAVINGS
DEPOSIT BANK COMPANY,
Medina, Ohio.

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
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PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.
H. M. PARKER, JR., James Island, S. C.

I SHOULD LIKE TO CORRESPOND with any reader of GLEANINGS who might be interested in the purchase of 135 acres of land most favorably situated in North Carolina. Chance of a lifetime, at only $10.00 per acre. F. J. ROOT, 90 West Broadway, New York.

PRICES OF QUEENS	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO, TEX.

Carniolans a Specialty ! !

ALSO breeders of Golden and Leather Italians. One untested queen, 75c.; six for $3.90; twelve for $6.00. Tested, $1.25. Best breeder, $2.50. Best imported, $4.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free. :-: :-: :-:

Carniolans.—We have bred this race of bees for 20 years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

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Atlanta, Georgia

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QUEENS
BEES AND HONEY

Highest Market Price Paid for Beeswax

Agents, Agents!

Anybody Can Do It.

We want good live representatives to take orders for "Peuro or Pearl" medallions; entirely new; sell at sight; big money; exclusive territory given; agents' supplies; novelties up to date. Write at once.

Universal Manufacturing Comp'ny
Pittsburg, Pa.

Red-clover : and : Italian : Queens

Average untested, 65c; two for $1.00. Select untested, 75c. Fine tested queens, $1.00 each. Four-frame nuclei, fine queen, in painted hive, $4.00. Remember we guarantee our queens to work red clover as well as white clover. Get my circular. Queens sent promptly. Fifty and one hundred at special prices.

G. ROUTZAHN, Route 3, Biglerville, Pennsylvania.

RED-CLOVER AND ITALIAN

QUEENS

ROOT'S STRAIN, FOR SALE.
Untested, $1; Select Tested $1.50.

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Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

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W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

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AND BEES

Golden or Leather Colored Italian, the best that money can buy anywhere.

THAT IS WHAT QUIRIN OFFERS YOU.

Our business was established in 1888, and we know what good stock is. This year our bees in outyards were ready for sections in April; in the fall they fill their brood-nest, and then in the spring they are ready for business.

We have 450 swarms back of our business, and are now ready to send you queens, nuclei, or full colonies. We warrant every queen sent out. For a dozen good unsolicited testimonials see Gleanings for April or May 1st issue.

We guarantee safe arrival of queens and bees. For prices, see table to right. Add the price of queen wanted with nuclei or colonies.

No order too large, or none too small. Free circulars.

Queens Go by Return Mail.

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	.....
Straight five-band breeders	5 00	.....	.....
Two-comb nuclei, no queen	2 25	12 00	22 00
Full colonies on eight frames	5 00	25 00	.....

Quirin-the-Queen-Breeder, Bellevue, Ohio.

We have ready for mailing a large stock of both

Tested and Untested Italian Queens

Either three or five banded queens. Specially bred for their honey-gathering qualities. Price, for tested, $1.00 each, $10.00 per dozen; untested, 60c each, $6.00 per dozen. ::: ::: ::: ::: :::

J. M. Jenkins,
Wetumpka, Ala.

Requeen your Bees. Now is the time to requeen your bees. I will sell you one tested red-clover Italian queen at 75 cents; six for $4.25; twelve for $8.00. I will guarantee satisfaction, and send all queens by return mail.

Fred Leininger, Ft. Jennings, O.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

California

Queens

I have made a specialty of producing honey for the last 25 years; have produced hundreds of tons of honey, and thousands of queens. Having procured the services of A. E. Titoff, the Russian expert, who has been with The A. I. Root Co. for the last two years, I have concluded to enlarge my business and make a specialty of the queen business. We have the very best of queens for business—the bees that gathered 100,000 lbs. of honey in 1902; also the very best of breeders from all the principal breeders of the U. S. Untested queens, $1.00; six, $5.00; tested, $1.50; best breeders, $5.00.

L. E. Mercer, Ventura, Calif.

Queens

California

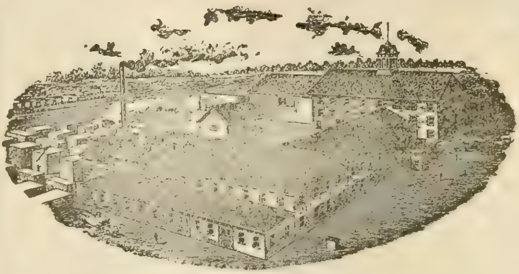
A TRIAL

of my strain of Italians will convince you of their merit Prompt shipment. Fine queens. No disease. Absolute satisfaction—or money back. What more can you ask? Untested, 75c; 6, $4.00; 12, $7.00.

S. F. TRECO, - Swedona, Ill.

$1.00 - LOOK - $1.00

Send me $1.00 and receive GLEANINGS one year, new or renewal, and a warranted Italian queen as a premium. bees are vigorous, healthy hustlers. Try one. Queens sent after April 15. W. T. Crawford, Hineston, La.



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

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We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

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Trester Supply Company, Lincoln, Neb.
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Dittmer's Foundation Is the Best.

Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

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Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, - : - Augusta, Wis.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

SECTIONS
and Comb Foundation

Shipping-cases, Bee-smokers, Bee-veils, Bee-escapes, etc.

Abundance of goods ready for prompt shipment. Orders received in forenoon shipped same day. .˙ .˙ .˙

Lewis' Goods in Indianapolis at Factory Prices----Cat. free.

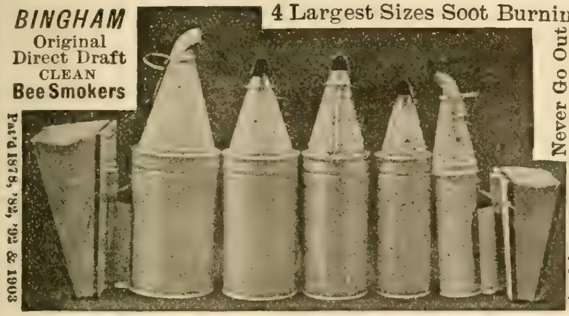
Fine Italian Queens
from our yard here in the city as follows: Untested, 75c; select untested, $1 00; tested, $1.00; select tested, $2.00

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danzy., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.



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Original
Direct Draft
CLEAN
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Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

LEWIS

Shipping-cases, Sections, and a full line of BEE-SUPPLIES,

By Return Freight or Express.

Send to

York Honey and Bee Supply Co.,
(Not Incorporated)
(Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells Street Cable Line from center of city to Ontario St.)
141-143 Ontario St.,
Chicago, - Illinois,
H. M. Arnd, Mgr. Long Distance Phone, North 1559.

Catalog and prices on honey on application. If you want good goods at factory prices, and prompt shipment, send your orders, or call on us.

BEESWAX WANTED!
28 cts. cash, or 30 cts. when taking bee-supplies in exchange — delivered here.

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case),	$8 50
In Chaff hives	9 50
Bees in any style of hive desired.	
Italian queens, tested,	$1 25
Italian queens, untested,	1 00
The best veils	40

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

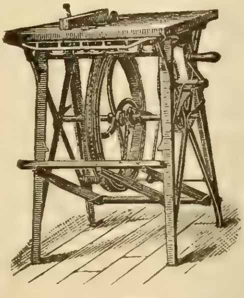
Insure Your Face

against irritation. Keep it smooth and healthy by always using

WILLIAMS' SHAVING SOAP

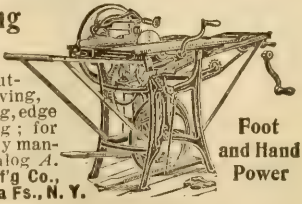
Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

The J. B. Williams Co., Glastonbury, Conn.



BARNES'
Hand and Foot Power
Machinery.

This cut represents our combined circular saw, which is made for bee-keeper's use in the construction of their hives, sections, boxes, etc., etc.
Machines on Trial.
Send for illustrated catalog and prices. Address
W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford. : Illinois.



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For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner. Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. A. W. Swan & Co., Centralia, Kan.

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published ***The American Bee-Keeper*** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. **Order of him and save freight.**

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey=boxes, Weed=Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

Hoosier=Italian Queens===By Return Mail.

Untested Queen	$ 75
Select Untested Queen	1 00
Tested Queen	1 00
Select Tested Queen	2 00
Select Breeding Queen	5 00
Best Imported Queen	5 00
Fair Imported Queen	3 00

Brazil, South America, June 6, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I wish to give you some news about your shipment of bees that stood the journey well and arrived on May 13. The two-frame nuclei with fancy breeding queen is now increased to a full colony, and occupies ten Langstroth frames. The queen seems to deserve her name, and is very beautiful and prolific. Very truly yours, D. AMORA VAN EMELEN.

Abilene, Kan., July 31, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I would like another Select Untested queen, such as you sent my friend, J. L. Worley, and myself last year. They are the handsomest queens and bees that I have ever seen, wintered well, and are hustlers. Truly yours, DR. FRANK PARKER.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICE

Special Notices

By Our Business Manager

Doolittle's Conversations will be conspicuous by their absence in this issue. The copy designed for this number was received in ample time, but it was mislaid with a large bunch of other copy until it was too late.

GLEANINGS FAIR CONTEST.

Our readers who intend to make exhibits at the coming county and State fair will find it easy to earn money by obtaining subscriptions to GLEANINGS. We offer some very liberal prizes for parties sending the largest lists. Besides these are our regular commissions allowed on every subscriber secured. We would very much like to be represented at every county and State fair possible. For particulars as to the contest see advertisement on page 848.

LAST CALL; SECOND GLEANINGS PRIZE-PHOTO CONTEST CLOSES SEPTEMBER 1.

Many of our subscribers could not take part in our first contest, as the time was so short, and it was the season of the year when good photos could not be obtained. Those who were fortunate enough to have pictures had an advantage. To give all an equal chance we have arranged our second contest to extend over the best time in the year to take pictures. Keep your eyes open for a good view, and when you have found it get a camera and you will have a chance to win one of our liberal prizes. It's a great satisfaction to have a good photo of one's bees, even though a prize is not won.

Convention Notices.

BEE-KEEPERS' FIELD MEETING.

The program of the bee-keepers' field meeting to be held at Jenkintown, Pa., Thursday, Sept. 7, 1905, has been sent us, and will appear in our next issue. The great demand on our space just now renders this delay unavoidable. A large number of the most prominent bee-keepers are on the program, which alone will insure an interesting meeting.

NOTICE TO BEE-KEEPERS.

I wish to announce that I have made arrangements to attend at least two fairs this fall with a finer exhibit than I ever had. First will be at La Fayette, Ind., Aug. 28 to Sept. 1; second will be at Kankakee, Sept. 4 to 9, and I invite bee-keepers to come and see the latest improvements in the line of bee-keepers' supplies. I especially request bee-keepers to attend the Kankakee fair, and to give us their ideas as to when it will be the best time to hold a convention in Kankakee. A convention of this kind would indeed be a help, and I see no reason why we should not succeed. H. S. DUBY.

St. Anne, Ill., July 25.

The Missouri State Bee-keepers' Association will meet in Sedalia, Aug. 22, 23. The opening session will be at 2:30 P. M., Aug. 22. The room for us to meet in will be named later. Louis A. Osborn, of that place, has kindly consented to act as host, and will direct us to a place of meeting and to accommodations. Good hotel accommodation can be had at $1.00 to $2 00 a day; private boarding, cheaper. Hon. Geo. B. Ellis, Secretary Agricultural Department, will be there to give us a talk and lend us a helping hand. The State fair, to be in session there at the same time, will cause cut railroad rates to be obtained from all parts of the State. The State Live-stock Association, also meeting there the 24th, will give us some inspiration. Let us turn out and make an extra effort. W. T. CARY, Sec.

Wakenda, Mo., July 11.

PREMIUM LIST

of the bee department of the San Antonio International Fair, beginning Oct. 21, closing Nov. 1, 1905; Udo Toepperwein, Supt., San Antonio, Texas.

Golden Italian bees and queen in single-comb observatory hives	$5.00	$3.00	$2.00
Three-banded, in same	$5.00	$3.00	$2.00
Carniolan bees and queen, in same	5.00	3.00	2.00
Caucasian “ “ “	5.00	3.00	2.00
Cyprian “ “ “	5.00	3.00	2 00
Holy-land “ “ “	5.00	3.00	2.00
Black “ “ “	5.00	3.00	2 00
Best display of bumble bees	5.00	3 00	2.00
Best display of banded bees	5.00	3.00	2.00
Best and largest display of various races of bees in observatory hives	10.00	6.00	4.00
Best and largest display of queens of various races in mailing-cages	5.00	3.00	2.00
Best case of white section comb honey, not less than 12 lbs	3.00	2.00	1.00
Best case of light-amber section comb honey, not less than 12 lbs	3.00	2.00	1.00
Best and largest display section comb honey	5.00	3.00	2.00
Best display of special designs in comb honey	5.00	3.00	2.00
Best 12 lbs. friction-top pail white bulk comb honey	3.00	2 00	1.00
Best 6 lbs. same	3.00	2.00	1.00
Best 3 lbs. same	3.00	2.00	1.00
Best display bulk comb honey	5.(0	3.00	2.00
Best dozen jars white ext'd honey	3 00	2 00	1.00
Best dozen jars light amber extracted	3.00	2 00	1.00
Best display of extracted honey	5.00	3.00	2.00
Best display of extracted honey in granulated form	3.00	2 00	1.00
Best sample cake of bright yellow beeswax, not less than 2 lbs	3.00	2.00	1.00
Best and largest display beeswax	5.00	3.00	2.00
Best display special designs beeswax	5.00	3.00	2.00
Best display fruit preserved in honey	5.00	3.00	2.00
Best honey vinegar	3.00	2.00	1.00
Best honey wine	3.00	2.00	1.00
Best display of honey-producing plants mounted	5.00	3.00	2.00
Best instructive display of apiarian products, and of the various uses made of honey and beeswax	20.00	10.00	5.00
Best and largest display of bee-keepers' supplies	Diploma		

THE NATIONAL CONVENTION TO MEET IN SAN ANTONIO, OCTOBER 28 TO NOVEMBER 1.

The International Fair holds its annual exhibition in San Antonio, Texas, Oct. 28 to Nov. 1. When this fair is in progress there are very low rates in force on the railroads out for 600 or 700 miles. Then there are harvest excursions from the North on the second and fourth Tuesdays of the month. The fourth Tuesday in October comes on the 24th. Considering these facts, it has been decided to select Saturday, Oct. 28, as bee-keepers' day at the fair. This will give ample time for members from the North to reach the city by starting the 24th. The regular sessions of the convention will begin Monday, Oct. 30, *and continue three days.*

The Fair Association has designated Saturday, Oct. 28, as bee-keepers' day, and will so advertise it, and especial pains will be taken to have on exhibition hives, honey, wax, bees, and other apiarian products. At this fair will be on exhibition all of the agricultural and other products of the South and Mexico, and a visit to it will really be worth all the trip will cost, to give one an idea of the South and her products.

Then the Texas members propose to give a genuine Mexican supper, which will be free to all outside members. There will be Mexican band and toast-making—in short, it might be called a banquet. On Sunday the members can attend church or go on a trolley-ride around the city. Side trips to Uvalde and other places are planned for all who wish to see the country after the convention is over, bee-keepers at the various honey-centers having promised to take the bee-keepers around free of charge. Texas is one of the greatest, if not *the* greatest, of honey-producing States in the Union, and bee-keepers will now have an opportunity to see her wonderful resources, enjoy the hospitalities of her people, and profit by meeting in convention, all at very small cost.

The headquarters of the National Association will be at the Bexar Hotel (pronounced Baer, long sound of a), corner of Houston and Jefferson Sts., and rates are only $1.00 a day, and up. The convention will be held at Elks' Hall, 125 W. Commerce St., only two blocks from the Bexar Hotel.

Every thing is now arranged except the program, and I wish that every one would write and make suggestions in regard to topics and men to discuss them. If you have no special topic that you wish put into the program, you must surely have some question that you would like brought before the convention. Pour in the suggestions and queries, and let me get up one of the best programs that we have ever had.

W. Z. HUTCHINSON, Secretary.

The Question of Roofing.

The question of roofing is becoming a more serious one year after year as shingles become poorer and higher priced. Even when good shingles are obtainable, the ordinary wire nails used with them last but a few years, and a new roof often becomes necessary while the shingles are yet good. Happily, however, the problem has been solved in a thoroughly practical and economical manner by Paroid Roofing, a durable felt roofing that is used by leading farmers, poultrymen, and dairymen the country over, as well as by railroad companies, warehousemen, and others who want a good durable roof at low cost. Paroid is now used by the United States Department of Agriculture in its construction work, and has also been adopted by the Panama Commission for use on all government buildings erected in the trying climate of the Isthmus. The Government adopted it only after trying its superiority for the purpose. Every reader of this paper should send for the Paroid booklet and a free sample. It will give you valuable pointers of economical building. Address F. W. Bird & Son, East Walpole, Mass.

QUEENS

We have secured the services of one of the best Queen Specialists in the U. S. Over 20 years' experience in raising queens. Our yard is stocked with select breeders from the very best yard in America, and can send queens by return mail.

Prices to Sept. 1, 1905

Untested Queens - - - $ .75
Select Untested Queens - 1.00
Tested Queens - - - - 1.50
Select Tested Queens - - 2.50

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Sample 10c; sub'pt'n, $1 a year
A. R. HARDING, Editor,
Columbus, - - Ohio

"Tell Mother I'll be There."

This beautiful solo that has moved so many hearts is in our new book "Gems No. 2 Revised;" also that melting new song "Beyond the Silent River," and 184 other good ones; suitable for home, Sunday School, Christian Endeavor, and the revival. "The best book I ever saw," says a noted evangelist. In ordering ask for and you will receive a free copy of the great temperance tract, "A Bottle of Tears." Board covers, 25c; muslin, 20c. Round notes or shapes—state choice. ::: ::: :::

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that "covers the whole apicultural field more completely than any other published," send $1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

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Liberal Discount to the Trade.

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Do you know that the government census of 1900 gives the value of the poultry in that year at very nearly $300,000,000?

POULTRY SUCCESS, the Twentieth-Century Poultry Magazine, is absolutely indispensable to every one interested in chickens, whether they be beginners, experienced poultry-raisers, or keep only a few hens. It is without question the foremost poultry monthly in this country, and readers of its articles on pure-bred chicks and their better care and keeping have come to realize that it is plain truth that there's "money in a hen." POULTRY SUCCESS has from 36 to 112 pages every issue; is beautifully illustrated and printed; has best writers; 16 years old; shows how to succeed with poultry.

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LEARN more about the great poultry industry. They make money while you sleep, and will live on what you throw away. Our paper tells how to make money on poultry, eggs, and incubators. Ask for sample copy now—it is free.

Inland Poultry Journal,
40 Cord Building,
Indianapolis, Ind.

Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight. **The Bee & Honey Company, Beeville, Bee Co., Texas.**

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

August and September Prices

Untested, each.....$ .65; ½ doz., $3.75; doz., $7.00
Warranted, each.... .75; " 4.25; " 8.00
Tested, each........ 1.25; Select tested, each 1.50

A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

W. W. Cary & Son, Lyonsville, Mass.

Queens that are Queens

My Adel strain of Golden Italians are a wonder. They gather honey from every honey-producing flower, and are practically non-swarmers. The queens quickly fill ten L. frames with brood, winter in fine condition, and rapidly build up in spring. Testimonials of their good work, with an eight-page leaflet on queen-rearing, free.

Best breeding queens, $1.00; half dozen, $5.50; dozen, $10.00. Every trade more than satisfactory. I have the most valuable strain of bees in the world.

Henry Alley, Wenham, Mass.

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

GEORGIA QUEENS.
BROKEN UP AT LAST

The severe dearth of honey and pollen has been broken up by a fine flow of honey, and we are again rearing queens from our Superior Golden and Leather Italians; also, Gray Carniolan stock. :: ::

Untested, 75c; six for $4.00; twelve for $7.00.
Tested, $1.00; Select, $2.00; Best, $5.00.
Send for circular. **T. S. HALL, Jasper, Pickens Co., Ga.**

The Busy Man's Method of Raising Bees, Price, 25c.

Choice queens................75c each.
DEWEY'S HARDY HONEY-GATHERERS.

E. H. Dewey, Gt. Barrington, Mass.

The Demand for
MOORE'S - STRAIN - OF - ITALIANS

becomes greater each year; the following report shows the reason why:

EXCEL IN STORING CAPACITY

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never in my thirty years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel any thing I have ever had." ::: ::: :::

I am now filling orders by return mail and shall probably be able to do so until the close of the season.

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.00 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free. :: ::

J. P. MOORE, MORGAN, PENDLETON CO., KY.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be a very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, 60c each; six for $3.30, 12 for $6.00. Free circular.

L. H. Robey, Worthington, W.Va.

AN - OPEN - LETTER

..... The queens I purchased of you last fall have proven to be the *best* I ever owned, both for gentleness and good honey-gathering qualities. Some have given three supers of sections, other colonies only one (my old stock). You certainly deserve credit for breeding up such a strain. I have had queens from several of the *leading* queen-breeders, but yours are by far the leaders.

Philadelphia, Pa., July 5, 1905. John P. Tull.

This is one of our many pleased customers. Are you one? If not, give our Italian queens a trial. You will not be disappointed. Untested, 50c; $6.00 per dozen; tested, $1.00.

J. W. K. SHAW & COMPANY
Loreauville, Iberia Parish, Louisiana.

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AT SYRACUSE, N. Y.

In ordering make order for 10 or 50 lots.

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SYRACUSE - - - - NEW YORK

MONEY = IN = BEES

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New England Bee-keepers will find a complete stock of Root's Goods at Root's Prices in . . .

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Best shipping center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me. . .

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Up First Flight, 182 Friend St.

DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. Delay means loss.

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PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., **PENNA.**

Bee-keepers' Field Meeting

JENKINTOWN, PA., THURSDAY, SEPT. 7, 1905

The Apiary.

This apiary is located just back of W. A. Selser's residence, and is composed of different races of bees from all parts of the world, as well as hives of the various designs, and bees in all stages of development, baby nuclei, queen-rearing, observatory hives, queens, etc.

The Meeting.

The Hon. H. A. Surface, Pres. of Penn. State Association, was desirous of getting a large number of practical bee-keepers together, and so many calls came from all over the East to the Root Company to visit their Jenkintown Apiary (since the last local meeting), that they united in the above way for this meeting, and appreciate the hearty way in which the Bee Associations have co-operated.

The Program.

The program will be arranged to start at 9:30 A. M., the President of the various Associations alternately presiding, and continue until 5:00 P. M.

The Entertainment.

Arrangements have been made to have lunch served on the grounds at noon and evening for 15 cents, just the actual cost of provisions.

The Place.

Jenkintown is on the line of the P. & R. R. R. Parties coming on other roads can come to Philadelphia and take the Willow Grove trolley line on 8th and 13th Streets, and get out at Jenkintown Toll-gate. Fare 10 cents.

Special Rates.

Special commutation rates have been made over the New Jersey Central and Bound Brook R. R., the New York train leaving at 7:00 A. M., stopping at Plainfield and Bound Brook. The fare from New York and return is $2.98.

Honey Exhibit.

Bee-keepers are kindly asked to bring along a sample of their 1905 crop of either their comb or extracted honey for the exhibition table. A prize of a three-frame nucleus, with one of our golden Italian queens, will be given to the one having the best sample of comb honey, and best sample, in the most attractive package, of extracted honey. Judges to be decided on by the members present at the meeting. Those not being able to be present, who would care to send samples, can do so.

For further Information and Particulars write

L. W. Boyden, Box 1037, 44 Vesey St., New York City. Phone, 543 Cortlandt.
Wm. A. Selser, Jenkintown, Pa. Phone, 181 W-Ogontz.
Root Co., 10 Vine St., Philadelphia. Phones, Bell, 4928 Market; Keystone, Main 1671.

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,

AT

SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

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124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

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Foundation

It excels. We guarantee satisfaction. . . . .

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of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

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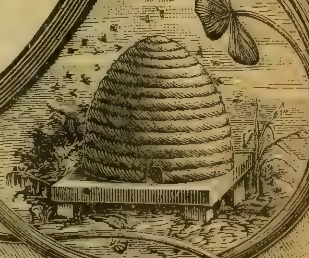

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U.S.A.

Eastern Edition

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GEO. E. HILTON,
Fremont, Mich.

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The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

Bees and Queens
from Select Stock

Correspondence Solicited.
GEO. A. HUMMER,
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The extra pains taken to make things just right,

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It can be had in Michigan of M. H. Hunt & Son, and with it "the extra pains" in packing carefully and shipping promptly.

Telephone your "Hurry-up" orders to us.
Every thing for the bees and every thing "Root Quality."

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Bell Branch, Mich.
WAYNE COUNTY

C. H. W. Weber,

Headquarters for

Bee-Supplies

Root's Goods at Root's Factory Prices.

Let Me Sell You the Best Goods Made,

you will be pleased on receipt of them, and save money by ordering from me. Will allow you a discount on early orders. My stock is all new, complete, and very large. Cincinnati is one of the best shipping-points to reach all parts of the Union, particularly in the South. The lowest freight rates, prompt service, and satisfaction guaranteed. Send for my descriptive catalog and price list; will be mailed promptly, free of charge.

Queens Now Ready to Supply by Return Mail.

Stock which can not be excelled. Each variety bred in separate apiaries, from select mothers; have proved their qualities as great honey-gatherers. -:- -:- -:- -:-

Golden Italians.

Have no superior, and few equals. Untested 75c; six for $4.00.

Red-Clover Queens,

Which left all records behind in honey-gathering. Untested 75c; six for $4.00.

Carniolans.

They are so highly recommended, being more gentle than all others. Untested 75c; six for $4.00.

C. H. W. WEBER,

Office & Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Ave.

Cincinnati, = Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Cincinnati.—The heavy requests for offers on honey recently have a tendency to lower the prices. We are striving hard to maintain good prices by giving our friends more than their honey is worth to hold up the market. So far we have been successful. We quote amber extracted, in barrels and cans, at 5¾ and 6½ respectively; white clover, 7@8½. We feel that lower prices will prevail in the near future. Comb honey is coming in quite freely, and we quote fancy white at 12@15. The arrival of the Western carload shipments of comb honey is anticipated daily, after which the market will be shattered to pieces. Beeswax, wanted at 26.

The Fred W. Muth Co.,
Aug. 18. 51 Walnut St., Cincinnati, Ohio.

Philadelphia.—Some honey arriving, with prospects of a good crop all through the East; but no call for comb honey during the hot weather, so that prices are not as yet established. Extracted honey is arriving freely, and is selling as follows: Fancy white, 7@8; amber, 6@7. Beeswax, 27. We are producers of honey, and do not handle on commission. Wm. A. Selser,
Aug. 21. 10 Vine St., Philadelphia, Pa.

Toledo.—The market on comb honey at this writing is practically the same as last; however, honey is being offered quite freely, and this has a tendency to decline the price. On account of the heavy receipts of fruit there is no great demand for either comb or extracted at present. Fancy white clover in a retail way brings 15; No. 1, 14; little demand for amber. Extracted white clover, in barrels, 6@6½; in cans, 7@7½; amber, in barrels, 5@5¼; in cans, 6@6½. Beeswax, 28@30.
Aug. 18. Griggs Brothers, Toledo, Ohio.

Toronto.—We have not reported the honey market of late simply because there were no reliable returns in. It is now generally known that the crop has been fairly good in Canada, especially in comb honey. In some parts of Ontario the crop has been good toward the east, and in Quebec the crop is only fair. Taking the country as a whole there will not be a very large surplus, so that fairly good prices should rule. Present prices: No. 1 extracted, 7½@8; comb, $1.50@$2.00.
Aug. 25. E. Grainger & Co., Toronto, Can.

St. Louis.—The honey market we quote as follows: No. 1 white-clover comb, 10@11; amber, 8½@9½; inferior, broken, dark, etc., less. Choice extracted, in barrels, 4@4½; in cans, 5@5½; inferior, less. Beeswax, prime, 28; impure and inferior, less.

R. Hartmann & Co.,
Aug. 18. 14 So. Second St., St. Louis, Mo.

New York.—No new comb honey on the market as yet, and very few inquiries so far. Extracted is in fairly good demand, and we quote California at 5½@7, according to quality and quantity; Southern, in barrels, 50@65 per gallon. Beeswax remains steady at 29.

Hildreth & Segelken,
Aug. 18. 265-7 Greenwich St., New York.

Buffalo.—The demand for honey is not brisk. What trade there is seems to want only No. 1 to fancy white. I suppose the demand will be better as soon as the rush of fruit is over and the weather gets cooler. We quote fancy white comb, 13½@14; A No. 1, 13@13½; No. 1, 13@13½; No. 2. 11@12; No. 3, 10@11, No 1 dark, 11@12; No. 2 dark, 10@11. Extracted, white, 6@7; amber, 5½@6; dark, 5@5½. Beeswax, 28@30.
Aug. 26. W. C. Townsend, Buffalo, N. Y.

Kansas City.—The honey market remains firm and receipts light, and prices show a little advance the last week. Market firm to-day at $2.85 for No. 1 white honey; other grades a little less, according to quality. Extracted honey, 5@6½, fair demand. Beeswax, 28.

C. C. Clemons & Co.,
Aug. 19. Kansas City, Mo.

Chicago.—The demand has absorbed all the offerings of fancy and A No. 1 grades of white comb honey at 14, while No. 1 has sold at 13@13½. No call at present for other than the best grade, it really being difficult to place what ordinarily is called No. 1. Extracted white brings 6@7; amber, light and dark, 5@6; beeswax, 28.

R. A. Burnett & Co.,
Aug. 18. 199 South Water St., Chicago, Ill.

Schenectady.—White comb and extracted honey is coming forward quite freely, and meeting with as good demand as could be expected in August. No buckwheat on the market yet. Present prices are 14@15 for fancy white; 12@13 for No. 1. These prices may change later on. Extracted brings 6½@7½.

Chas. McCulloch,
Aug. 21. Schenectady, N. Y.

Detroit.—Very little new honey in the market, and a tendency to hold off until prices are more settled. We quote fancy and A No. 1 comb, 12@13; no dark honey at all yet. Beeswax, 26@28.
Aug. 19. M. H. Hunt & Son, Bell Branch, Mich.

Denver.—A little new comb honey is commencing to come in now, and we are selling No. 1 white at $3.00 per case of 24 sections; No. 2, $2.75. Extracted, 6¾@7½. Beeswax, 24.

Colorado Honey-producers' Ass'n,
Aug. 24. Denver, Colo.

Columbus.—We quote as follows: Fancy white, 15; No. 1, 14; original carriers, 1c less.
Aug. 19. Evans & Turner Co., Columbus, O.

STANDARD BRED QUEENS.
BUCKEYE STRAIN RED CLOVER, GOLDEN ITALIANS
By Return Mail. Safe Arrival Guaranteed.

PRICES	ONE	SIX	TWELVE
Untested	$0.75	$4.00	$7.50
Select Untested	1.00	5.00	9 00
Tested	1.50	8 00	15.00
Select Tested	2.00	10 00	18.00

Select Breeders, each $3.00
Two-frame Nucleus and Red Clover Queen 3.00

THE FRED W. MUTH CO.,
No. 51 WALNUT ST., CINCINNATI, OHIO.

September Discount for Cash Orders 10%

Root's Goods Wholesale and Retail. See Special Notices, Page 934.

The A. I. Root Company - - Branches and Agencies

ATLANTA.—We quote our market to-day as follows: Comb honey in sections, fancy, 12@13; A No. 1, 11@12; No. 1, 9@10. There is no demand here for extracted honey at this writing, hence we make no quotations.
Aug. 19. JUDSON HEARD & Co., Atlanta, Ga.

FOR SALE.—6000 lbs. A No. 1 white-clover extracted honey, in new 60-lb. cans, at 8 cts., f. o. b. here. This honey was left on the hive two weeks after the season closed, and then only the full, all-sealed, upper stories were extracted in this lot. All the partly filled upper stories were extracted by themselves and sold at a less price. Speak quick, as we are two-thirds sold out. Sample free. Our amber extracted will be ready for the market the last of the month.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Choice extracted white-clover honey. new crop, in new 60-lb. cans. Sample, 5c.
G. A. BLEECH, Jerome, Mich.

FOR SALE.—New clover honey in 60-lb. cans.
C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

FOR SALE —1000 lbs. of extracted white-clover honey in 60-lb. cans, two in a box, f. o. b. Will send samples for 10 cts. W. S. WRIGHT.
365 W. Van Buren St., Battle Creek, Mich.

FOR SALE.—Comb and extracted white-clover honey; also full colonies Italian bees. Please write.
F. M. MAYBERRY, Obelisk, Pa.

FOR SALE.—7000 lbs. new clover honey in 60-lb. cans; sample free. JAS. MCNEILL, Hudson, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—12,000 lbs. new clover honey, comb and extracted; latter in five-gallon cans, one and five pound pails, and glass jars. State your wants, and we will quote a price that is right.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

WANTED.—Comb and extracted honey. State kind, quantity, and how put up.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—White-clover comb and extracted honey.
B. WALKER, Clyde, Ill.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—Honey in any quantity. State price, quantity, and quality. Address JUDSON HEARD,
110 South Forsyth St., Atlanta, Ga.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ills.

WANTED.—We are in the market for buckwheat honey, both comb and extracted. When writing be sure to tell how it is put up, mentioning the grade; if comb, No. 1 or fancy; and send sample if it is extracted. We do not want it mixed with other flavors.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St. New York.

WANTED.—Strictly first-class white bulk comb honey. Any quantity. Write quantity you have, what size packages and price expected f. o. b. your nearest R. R. station. UDO TOEPPERWEIN, San Antonio, Texas.

WANTED.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
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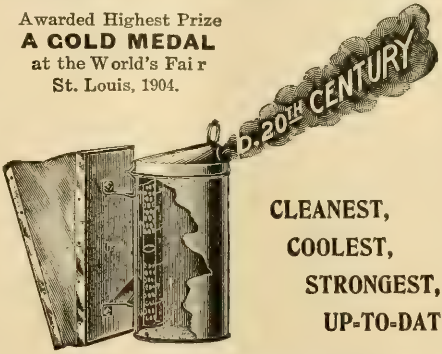
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



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It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

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a few tons of honey, and pay cash at your depot. Correspondence solicited giving full particulars as to quality style of section, when it will be ready to ship, price wanted, etc. If satisfactory, I will call on you.

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Why not make the fairs you attend profitable as well as instructive? Make a good honey exhibit and secure awards. Then use your time to advantage soliciting subscriptions to GLEANINGS IN BEE CULTURE. GLEANINGS makes very liberal inducements in regular commissions besides large cash prizes. This matter is worth looking into. . . . .

County - and - State - Fair - Contest Prizes : : : : : $10, $5, $3, $2

To induce bee-keepers generally to enter our Fair Contest we make the following very liberal prizes over and above the regular commissions earned. For the party sending the largest list of subscribers, $10; for the second largest, $5; for third largest list, $3; for the fourth largest list, $2. Subject to the following

CONDITIONS

First.—That subscriptions entered in contest are obtained at the fair on dates named in application below, or obtained as results of work during fair.

Second.—That to win any cash prize the contestant must have to get at least 5 yearly subscriptions or equivalents.

Third.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, 6 mos.) are equivalent to one year's subscription.

Fourth.—That contest closes Nov. 15th, and announcements will be made in Dec. 1st GLEANINGS.

Fifth.—That subscriptions can be sent in any time, but must be plainly marked "For Fair Contest."

Sixth.—That only one agent will be appointed for any one fair.

Seventh.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE

Date....................................

GLEANINGS IN BEE CULTURE, Medina, Ohio:
Fair Contest Department.

Please send agents' terms and enter my name as contestant in Fair Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions, and agree to them.

Date of Fair..................... *Name*....................................

Name of Fair......................... *P. O.*..................................

I can use........*sample copies of Gleanings.* *State*......................

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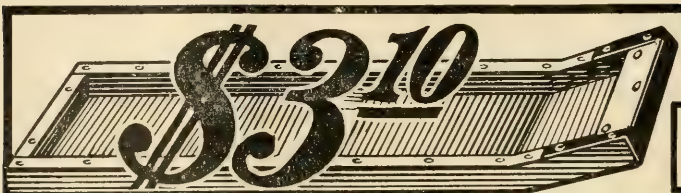

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Co-operative Society of the National Supply Co.
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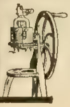

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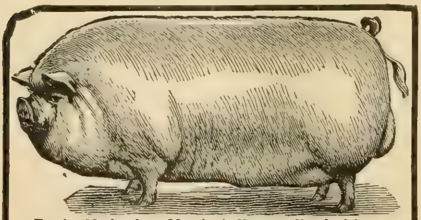

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The vigorous constitution, solid bony frame and the large litters produced are bringing Yorkshire Hogs to the favorable attention of farmers everywhere. Yorkshires fatten rapidly and mature early up to 300 pounds—making them very profitable market hogs. *Blooded Stock*—that enterprising, hustling farm stock paper—will devote its September issue to Yorkshires. Every number of

BLOODED STOCK

is intensely interesting to the live farmer and stock raiser. September issue will be especially so. J. A. McDonald, of Prince Edward Island, a very able English writer, will contribute a valuable paper on Yorkshire hogs, while others of equal ability will furnish facts on feeding and breeding which will be helpful to every reader. The October issue will be devoted to the Chicago Stock Yards. Every farmer should read the October number. Don't miss a single copy. 25c a year makes it easy to take.

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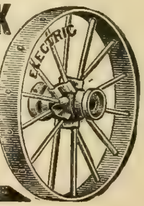

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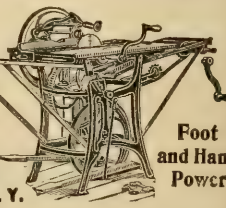

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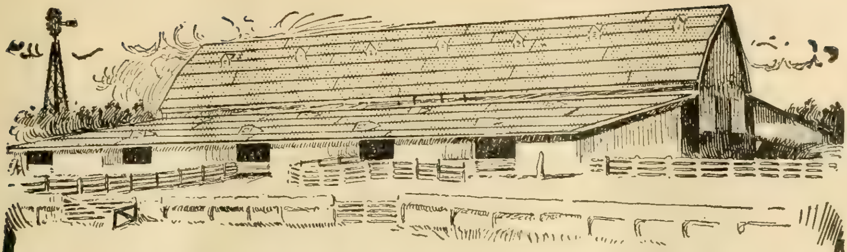

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I SHOULD LIKE TO CORRESPOND with any reader of GLEANINGS who might be interested in the purchase of 135 acres of land most favorably situated in North Carolina. Chance of a lifetime, at only $10.00 per acre. F. J. ROOT, 90 West Broadway, New York.

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Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. **A. W. Swan & Co, Centralia, Kan.**

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.

$1.00 Per Year Medina, Ohio

Vol. XXXIII. SEPT. 1, 1905. No. 17

Stray Straws

By Dr. C. C. Miller.

THAT SPURT that I reported Aug. 7 didn't amount to much. Clover is still plentiful, Aug. 21, and bees do a little in the forenoon, but nothing to amount to much has been stored since July 20. But it's something to be thankful for that bees are making their living, and they're doing at least a little more than that.

"VIRGIN" is a word that may be used alone more than it is. Gradually we have come to use it altogether in our work in the apiary for any but a laying queen. "No. 5 has a virgin" means No. 5 has a young queen not yet known to be laying. "No. 6 has a queen" means it has a laying queen. Economy of language, you see.

GRIGGS BROS., page 859, speaking of sections only half filled, say that "this kind of honey is worth too much to the bee-keeper to keep as bait sections for another season." They probably do not mean just what they say, for that kind of *honey* should not be kept, but the comb in the section after the honey has been emptied out by the bees. This by way of caution to the beginner.

L. BURR writes that the right kind of a putty-knife is sufficiently strong to lift heavy supers—the blade four inches wide at the edge, and fastened in the handle with two screws. He thinks no better hive-tool need be sought. [One of our apiarists prefers a broad-bladed putty-knife to any thing else. With it he does every thing that one can ordinarily do with any tool; and it always has the merit of being the best propolis and wax scraper that can possibly be devised.—ED.]

W. G. HUTCHINSON, page 858, says the survival of Italian blood shows them fittest for the tropics. Here it is black blood that is most persistent. Very, very hard to keep up any thing like pure Italian blood. [I believe it is a fact that a locality pretty well Italianized will, if left to itself, without the infusion of fresh yellow blood, in time revert to the black blood. Apparently the conditions in this country are such as to favor the increase toward the black brood rather than toward the yellow.—ED.]

SOME REMARKS, page 857, about cubical-shaped hives lead me to say that it should not be forgotten that the depth of the Langstroth hive is as great as either of its other dimensions during that very important portion of the year when bees are laying up surplus. However you may limit the depth to that of the brood-chamber, the bees don't recognize any such limitation. They count the sections or the extracting-chamber just as much a part of their home as the brood-chamber. [Your observation is quite correct. A good many who use cubical-shaped hives forget the fact that the Langstroth hive may be any depth from a story and a half to three stories or more.—ED.]

IF A SECTION of honey is taken off just as soon as it is sealed, the honey will not be as rich as if the section is left on two or three weeks longer. But that two or three weeks' improvement, instead of raising the market value of the product, will lower it. The consuming public knows that the earlier-harvested article *looks* nicer, but it doesn't know that the darker, better-ripened article *tastes* nicer. If it knew the whole truth, would it not prefer the really better article? Ought or ought not some pains to be taken to educate the consuming public as to the real truth? [What you say is all true; but I am afraid it will take a long time before we can educate the dear public to believe that dark dirty-looking honey may be a whole lot better than the fancy white goods selling at a much higher price.—ED.]

RESPONDING, Mr. Editor, to your request for report from any one who has successfully wintered duplicate queens, I may say that I wintered many a queen much as Wm. Reiber says, page 871, only I used, instead of screen divisions, thin board partitions.

Usually I had only two nuclei in the same hive; and in the winter, by looking in at the entrance the two clusters of bees could be seen formed into one cluster, just as if there were no $\frac{5}{16}$ board between them. [The A. I. Root Co. is somewhat interested in this proposition, for it would like to winter over a large surplus of queens in order to have them on hand ready for the early queen orders. If the plan under consideration is generally feasible for a good dry cellar, then all we would have to do would be to remove one queen, draw the division or slide, and allow the queen in the other to become the mother of the portion dequeened. Perhaps this remaining queen would have to be "introduced," to prevent the motherless bees or those lately made motherless from attacking the new mother. —Ed.]

A correspondent asks me to answer here the following: "I have for honey-flow here, no basswood, just white and red clovers, a little sweet clover along roadsides, and smartweed. Have you any reason to think that 100 colonies of bees could be supported with good returns in such a locality?" Yes, if the white clover is abundant. You have pretty nearly described my own location, except that smartweed (heartsease?) does not count much. But I'd give a pretty penny if some one would tell us whether, year by year, 80 colonies would not give me more surplus than 100. [This is a question as much as any other one in bee culture that hinges largely on locality. In Mr. Alexander's locality, and his management and his bees, I think 1000 colonies would not be too many for one yard. In another, 50 colonies might be too many. From my study of the different locations throughout the United States I should say the average locality would not support over 100 colonies to the yard. Heartsease (or "smartweed" as we call it here) never yields honey, and yet in Nebraska and other of the Western States it is quite an important honey-plant. Locality again, you see.—Ed.]

D. M. MacDonald, the able correspondent of the *British Bee Journal*, referring, no doubt, to what was said about foul brood in Gleanings, pages 468 and 524, says: "I should like to disabuse the minds of Americans of the prevalent idea there, lately expressed by Mr. Scholl, Dr. C. C. Miller, and Mr. E. R. Root, that the disease here is of 'a milder form than the disease we have here in America.' It can be as virulent here as there, and as destructive. *Bacillus alvei* is the same everywhere." What was said in Gleanings had more especial reference to foul brood in Europe. To be sure, *Bacillus alvei* is the same everywhere, as Mr. Root expressly said, page 524, but, as he there added, "the same microbe, under some conditions, might be much more destructive than under others." Certain it is that in some parts of Europe, probably where it has prevailed for a long time, it is much less violent than in other parts where it is more lately introduced, so that some European writers have been inclined to speak of two forms of foul brood. I had not thought there was any great difference between England and America as to the violence of foul brood, although there is probably more virgin soil for it to work upon here than there; and on that virgin soil it would not be strange if it were more severe.

If you had taken the trouble to ask me in advance, Mr. Editor, whether it wouldn't be a good plan to make an outdoor feeder out of a honey-can with holes punched in it, I think I should have told you not to waste time fooling with it. With your explanation, page 855, and especially your philosophy as to the bees tumbling down under the can, which has interested me exceedingly, I don't wonder that you are enthusiastic about it, and I feel as if I'd like to get a can—guess I must—to try it. [I am very sorry, doctor, but later experience with the inverted can with holes punched in the top leads me to believe it is not quite ideal yet. It is far better than a grooved board in that it makes the bees consume time in getting a load of syrup, but still allows them to struggle some and tug away at each other yet. I am coming to believe that the best solution of the outdoor-feeding problem is that suggested by W. L. Porter, of Denver, Col., namely, spraying the syrup on hive-covers, boards, or sheets spread on the ground. It would be still better if the syrup could be scattered in minute drops with an atomizer, the drops about an inch apart. We must approach as nearly as possible the conditions furnished by a clover-field—here a little and there a little, but that little so *very* little that the bee is obliged to visit possibly 25 to 50 blossoms or flower-tubes before it gets a full load—Ed.]

GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

GOVERNMENT WORK.

I suppose few of us really believe in paternalism in governmental affairs. We believe in individual effort, and are proudest in that which calls from the individual the best that is in him; yet I am proud of the work that our government is doing for the people. That this is commendable appears in the fact that foreign nations are praising the Agricultural Department and its research in practical directions more than any other one of our characteristics. I doubt if there is a more able, honest, and unselfish body of scientific workers to be found in the world than are associated together in our own Agricultural Department at Washington.

BEES TO THE FRONT.

It fairly made my blood tingle the other day as I went up through the magnificent lawn from Pennsylvania Avenue to the main building of the Department of Agriculture, to note in a very prominent place on the lawn to the left of the main entrance a beautiful well-equipped apiary. At first this would seem strange; but why? An observatory or even a weather-gauge would cause no remark nor create any wonder; yet not the moon nor the stars, nor even our control of the weather, plays any thing like so important a factor in the real welfare of the people as do the little bees that populate these same hives. It is good that the bees conserve nectar that would otherwise go to waste. It is good to have this food, par excellence, saved to nourish our people. Yet the function of bees in pollinating plants is indefinitely more important to us as a people and as a nation. Successful agriculture lies at the root of all success. It is of the greatest moment, then, to foster that which pushes for success on the farm. There is hardly any one thing in the economy of nature that helps so much toward success as do bees in their great work of cross-pollination of plants. It occurs to me that two of the greatest discoveries in modern science are, first, this work of cross-pollination by the honey-bee; and, secondly, the even greater work of our minute bacterial friends in their operations to increase the fertility of our soils. I need say no more in explanation of my appreciative pleasure in seeing this apiary in so prominent a place on the agricultural grounds at Washington.

DR. E. F. PHILLIPS.

It was my pleasure two days ago to spend a considerable period with one of the assistants in the apiarian division of the Bureau of Entomology, Dr. E. F. Phillips. He is well known to GLEANINGS and its readers. Indeed, he and we have reason for gratitude for what The A. I. Root Co. has done for him. Is it not one of the grandest characteristics of the science of to-day that it is most pleased when it is utilitarian? The science that helps may not be the best science, but it is certainly better that it helps. Dr. Phillips recognizes this fact, and so he spent his vacations, even while yet in college, at the very hub of apiarian activity on this continent if not in the world. That he got a very valuable if not the best part of his education right here goes without saying. I am exceedingly pleased that Dr. Phillips is selected to take charge at Washington during Mr. Benton's absence. I believe it is a wise appointment. Dr. Phillips has a thorough scientific training. He is enthusiastic in the direction of the bee and the apiary. He has a natural adaptability to work and study in this direction. That we shall see results from this wise choice I have not the least doubt. I believe Dr. Phillips will give to all our bee journals the points of interest and value which he may develop in the lines of research under his charge. Dr. Phillips took as his thesis work, while yet an undergraduate in the University of Pennsylvania, the subject of the wax-glands in the honey-bee. Later he did extensive work on the subject of parthenogenesis, the truth of which he demonstrated by his own research while yet in the University. We see, then, that we could hardly have a man better fitted for such lines of investigation than is Dr. Phillips.

THREE IMPORTANT LINES OF INVESTIGATION.

Here, again, the government had best do that which the individual is unable to do, or, mayhap, from the circumstances will not do, and yet that which promises advantage to all practical workers in the field. I had a long talk with Dr. Phillips regarding this research work. He feels as enthusiastic as I do regarding the importance of determining in what sections of our country apiculture may be practiced with certainty of success. It is well to gather up the nectar from the flowers of every part of the country. It is far more more important to do any thing that shall scatter apiaries broadcast throughout our land. We have all admired the intensive agriculture of the Old World. Is not one feature of that intensity that which, perhaps, helps most to bring greater remuneration, the greater abundance of bees, and thus the more thorough cross-pollination of the various vegetables and fruits which swell the earnings of the tillers of the soil? I believe this is a matter of the greatest economic importance to demonstrate in just what sections of our great country apiculture will succeed. I believe they are far more numerous than we wot of. Of course, in time we shall find that out from individual effort with no help from the government; yet this will be very tardy, and very costly tardiness. I have no doubt that Dr. Phillips will counsel research in this direction. From his evident ability we may be just as sure that his suggestions will have weight with the powers that be.

The second line of research, which is very desirable, is in the line of the importation of new varieties and species which may promise improvement to our bee-keepers. Mr. Benton is now in the East working in these lines. It is doubtful if any one else in the world is so well fitted for this work as Mr. Benton. It may be that we shall get no improvement; but so long as there is unrest among our most enterprising bee-keepers, and a desire to try these foreign bees, just so long there will be a waste of energy that we can ill afford. It is to be hoped that Mr. Benton will bring us something valuable in the practical work of the apiary. If this is impossible we may rest assured that he will settle the matter, and so we shall deem it no longer necessary to agitate exploitation in this matter.

The third line of research has to do with the improvement of our races, and why not? We have improved our cattle, horses, sheep, and hogs to a marvelous degree.

The bee would seem to be most susceptible in lines of variation and development. The student of bees is amazed at what natural selection has done for this species. Is it not marvelous that the queen-bee will lay nearly double her weight of eggs each day in the busiest part of the year? And why has the bee such wonderfully varied functions, and a correspondingly varied anatomy, except that it is ever ready to vary, and that these variations are easily fixed? Dr. Phillips has already commenced actively to investigate in this line. This is not the work of an hour or of a year, but may require a score of years. Indeed, this is one reason why it is, eminently, work for our government and not for the individual. I believe we may safely count on Dr. Phillips giving us great benefit in this line of his work. Let us all encourage him by word and by friendly letters.

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

FOUL BROOD.

Look out for foul brood now. In a season of scarcity like this it is much more likely to develop than at a time when honey is coming in freely. If you are not keeping close watch of your bees yourself, better send for the inspector to look them over.

MANUFACTURED HONEY AND EGGS.

The Denver *Post* recently made the statement, in answer to a correspondent, that not only both comb and extracted honey were manufactured and largely sold, but that eggs were also manufactured. I had hoped that no newspaper in a State that produced as much honey as Colorado would be found so lacking in discretion; but perhaps there is no newspaper employing a large staff of writers that does not occasionally have need of the services of the fool-killer.

SWEET CLOVER.

Prof. Richards, botanist of the Kansas Experiment Station, writing in the Kansas *Farmer*, says that sweet clover contains in its leaves and stems a bitter substance which renders it extremely distasteful to stock, and that, so far as he has ever seen or heard, they will never eat it except under compulsion or as a last resort from starvation. Doubtless the professor makes this statement in good faith; but the wonder is that any one of such extremely limited practical experience should be in such a position. Nor does lack of experience excuse a man for such statements as the following: "The only value that the white sweet clover possesses lies in its qualities as a bee-plant. It also serves to hold embankments and gullies which are in danger of washing. But, unfortunately, its advantages in the directions named are in most cases more than offset by its disadvantages as a positive weed. It rapidly takes land, both in pasture and in cultivation; and as it seeds very liberally its rate of increase is tremendous."

THE HONEY CROP.

The honey crop shows no signs of improvement, and it is all but settled that for most of our bee-keepers the season is one of absolute failure. Little or no honey has been secured, and many of the bees will need feeding to get them to winter safely. I have lately returned from a trip through the Plateau Valley, one of our best honey-producing districts. They have had a little honey there, though the most sanguine estimates were that there would be a third of a crop. In many cases this estimate would plainly be too high unless the remainder of the season should prove good, of which there was a fair prospect.

SEPARATORS IN SHIPPING-CASES.

One of the greatest defects in our present system of marketing honey is that no provision is made for the proper handling of honey after it leaves the case in which it is shipped. Here is a substance of a delicate and fragile nature, easily injured by contact with almost any other substance, protected only by a narrow rim of wood around its edges, with two surfaces each at least four inches square entirely unprotected. The grocer sells usually only one section of honey at a time, which may or may not be wrapped in paper or put into a sack, and is then put into a basket with other articles, to take its chances in a rough-and-tumble ride over the streets until it reaches its destination. Is it any wonder that many times the chief charm of section honey, the delicate beauty and daintiness of appearance, has disappeared before it reaches the table of the consumer? This is, after all, the court of last resort. It matters not if the honey looks beautiful in the honey-house of the producer, in the warehouse of the jobber or commission merchant, or in the store of the retailer. If it is not inviting in appearance after it reaches the consumer, all our efforts have been in vain. "Plain" sections are very much worse in this respect than the ordinary style, in which the projecting edges protect the honey somewhat, and this, in my opinion, is one of the most serious objections to the plain section. In order to protect against the damage done in shipping, when one comb breaks loose, and then, by pounding against its neighbors, breaks or damages several others in the same row, separators have been used to some extent. They are useful for this, but they may be made to serve an even more important purpose. Let these strips of thin veneer be scored, as berry-box material is, so that they can be easily broken into pieces the size of a section; then when a section is wrapped up one of these thin boards can be placed on each side, or on the exposed ends when several are wrapped up together. This makes a perfect protection for the honey at far less cost than the paper cartons, which have, moreover, the disadvantage of hiding the comb surface.

I used these scored separators to some extent a number of years ago, and would have used them much more largely, except that I found it difficult to get them made unless ordered in larger numbers than I could profitably use.

WHAT THE PUBLIC KNOW ABOUT OUR BUSINESS.

When we come across some unusually glaring instance of misrepresentation of our industry in the newspapers we are apt to be indignant at what seems the malicious intent, or to marvel that such stupidity should be found in such a position. Just remember that the ordinary newspaper reporter is only an average mortal; and, though he may be well educated in certain special directions, he is just as apt to be densely ignorant of what lies a little out of his experience as any one else. We do not appreciate how little the general public know of what is a matter of every-day knowledge with us. We sometimes wonder why more honey is not consumed. It is an actual fact that there is a considerable proportion of our population who not only never taste honey, but who scarcely know what it is. I was once delivering some honey in an Illinois mining town when my attention was attracted to a group of street urchins who were excitedly discussing the question of what it was that I had in my wagon. Finally a ten-year-old settled the question thus: "Aw, I know what them things is. Them's hornets' nests." A year or two ago I hired for a few days a young man of foreign descent, though he had traveled over a large part of the United States. Looking at some honey in sections he asked, "Is that honey?" I assured him that it was. He then volunteered the information, "Lot's of people don't know what them things is. I've seen them boxes in grocery stores lots of times, but I never knew what they was."

ELASTIC SUPPORTING STRIPS IN SHIPPING-CASES.

Twelve or fifteen years ago a western bee-keepers' association offered a liberal prize for a case of honey put up in the best manner for shipment. As I expected to attend the convention I gave some serious thought to the subject, with the idea of capturing that prize. I did not go to the convention, and my ideas were never made public, though some of the principles have since come into general use. Two of the principal features of my system were the use of the scored separators elsewhere mentioned, and supporting strips under the sections, both at that time unknown. The supporting strips, which I used for several years thereafter, differed from those now in common use in that they had a considerable degree of elasticity. This was secured by cutting strips of the ordinary corrugated paper board, such as is commonly used for wrapping bottles and other fragile articles for shipment. The strips that I used were an inch wide, cut across the corrugations. This seemed to be amply wide, as I had opportunity to examine a great deal of honey after a forty-mile shipment, and the corrugations were but little crushed, still retaining a large share of their elasticity. I do not now remember what these strips cost, though they would probably cost more than the drip cleats made of wood. In some cases, though, where the sections were not well filled, or when honey had to be shipped in very cold weather, or in small lots by express, or whenever it would be likely to receive unusually rough handling, it would probably pay well to go to the extra expense as an insurance against damage. If the manufacturers do not supply them you can easily get enough for experiment or for shipping small lots of honey from your druggist or any one who buys goods in glass, as the material is very extensively used now.

NOMINATING OFFICERS FOR THE NATIONAL.

Our past methods of nominating officers have been admittedly unsatisfactory. The postal-card plan followed last year was doubtless an improvement over old methods, but it still leaves something to be desired. What we really need is some plan which will allow of some public discussion of the candidates in advance of the election. We must remember that nearly all of the members of the National have absolutely no acquaintance with the leading bee-keepers of the country, outside of their own locality, except what they have learned of them through the bee-journals. This has made it difficult in times past to make any change in the officials of the Association, as the tendency is to vote for the re-election of the old officer. This is, unquestionably, against the interests of any society. While there are sometimes cases where an officer has done such excellent work, has shown himself such a capable business man that the interests of the organization demand that he be kept in office as long as he can be induced to serve, it is usually far better that changes be made and fresh blood introduced occasionally. No one should be re-elected who has been unsatisfactory in any respect. It is my belief that no man should hold an office for more than two consecutive terms. The editor of the *Review* has advocated the plan of nomination and discussion in the journals; but I believe his suggestions have not been followed to any extent. If any thing is to be done, somebody must make a start, and I will set the ball rolling in GLEANINGS. I nominate for president, O. L. Hershiser, of Buffalo, N. Y. Mr. Hershiser is a well-known bee-keeper, a man of liberal education and of known ability and business capacity. He has attended nearly every National convention (an important matter to consider), and has usually been given a place on the most important committees. I believe he would not only make an acceptable presiding officer but an efficient and valuable head to the Association in other respects. There are some men I should like to nominate for other positions, and I might go on and nominate a full ticket, but I should prefer that others take a hand, so I will stop with the head of the ticket, hoping that others will make nominations — the more the better — for all the offices to be filled.

Editorial
By E. R. Root.

In my trip east, made in the last few days, I saw an unusual amount of goldenrod in different parts of York State. It seemed to be yielding considerable honey, although it seldom yields any thing here. Buckwheat in Eastern New York must be a tremendous yielder of nectar. The in-rushing bees came in loaded as if they had come from basswood. Elsewhere it does not amount to much as a honey-producer, except an hour or so in the morning.

The following letter from Mr. W. H. Putnam, editor of the *Rural Bee-keeper*, will explain itself:

> *Mr. Root*:—Many thanks for the nice things you say, page 857. There is, however, a correction I feel I should make, and that is, you should credit those thoughts and sayings to T. K. Massie and not to W. H. Putnam.
>
> River Falls, Wis., Aug. 21. W. H. Putnam.

I stand corrected. But in looking over that copy of the *Rural* I can readily see how I made the mistake. If the paragraph preceding the black dash had been put in small type, perhaps I should not have made the mistake; but the matter in question starts off almost as if it were an editorial, for the black dash apparently cuts it off from that which precedes. My thanks are extended to Mr. Massie as well as to Mr. Putnam.

WANTED—A PERFECT OUTDOOR FEEDER.

The inverted square can with holes punched in the top (before inversion) for an outside feeder, while a decided improvement over the grooved-board plan, does not entirely prevent the bees from struggling against each other. The result is that in some of our hives many of the bees are shiny-backed. These, we anticipate, will die early. A perfect outdoor feeder is yet to be discovered.

THE HONEY CROP FOR 1905; PRICES.

Conditions have not changed materially since our report on page 857. Michigan and Ontario still stand out in the lead in securing a fair crop of honey, and the other Northern States report from a fourth to half a crop. There will be a late fall flow in many of the Eastern States. Indeed, buckwheat, goldenrod, and other fall sources, give evidence of a good yield of dark and amber honey. The reports are still discouraging for Colorado and Texas. Wm. Rohrig, Secretary of the Arizona Honey Exchange, reports for that Territory from one-fourth to half a crop. Reports from Nevada and Utah are rather unfavorable, and the same may be said of Idaho.

There will not be very much Western honey in competition with the Eastern product. While the crop of white honey in the Northern and Eastern States is about the same as last year (and last year was below the average), yet the fact that there will be practically no competition from the West ought to make a stiffening in prices on Eastern honey. Until further notice the trade would be warranted in offering an advance over last year.

THE HONEY-PRODUCERS' LEAGUE GUARANTEE CIRCULAR.

The Honey-producers' League, with headquarters at Chicago, G. W. York Manager, has succeeded in getting the leading manufacturers of bee-keepers' supplies to furnish at their own cost, with the shipping-cases, a guaranteed-comb-honey circular intended to aid in dispelling the belief that comb honey is ever manufactured. It is the intention that one of these leaflets be put out with every shipping-case by the producer, so that the general public may be properly informed concerning the contents of the case. The full text of the leaflet is as follows:

TO THE PURCHASERS OF THIS HONEY.

The producer of this Comb Honey, and also the undersigned, guarantee that the product in these sections, or small frames, was all made by honey-bees.

There is no such thing as manufactured comb honey. It never was made and never can be, newspaper and magazine articles to the contrary. If any one says there is such a thing as manufactured comb honey on the market, just tell that person that the National Bee-keepers' Association, an organization of over 2000 members, through its General Manager, N. E. France, of Platteville, Wisconsin, will pay $1000 for proof of such machine-made combs filled with glucose or any other cheap syrup, and capped over by machinery without the aid of bees. Also, a corporation capitalized at $300,000, all paid in, has had for many years a standing offer of a like sum for the same so-called manufactured comb honey as described, and the offer is still good. In addition to this, the bee-expert, a life long bee-keeper, now in the employ of the Department of Agriculture at Washington, has repeatedly, in government bulletins and in public addresses, denied the existence of any such product. For evidence of this fact, refer to the report of the Secretary of Agriculture for 1904, page 83; also to Farmers' Bulletin No. 59, for 1905, pages 32 and 34, also issued by the Department of Agriculture, entitled "Bee-keeping," by Frank Benton.

It may be well to state that the basis for these comb-honey canards is possibly due to the fact that the flavor of honey in one locality may be very different from that of another; that when one tastes of a honey quite different in color and flavor from that which he used to eat on the old farm, he concludes it is adulterated or manufactured, especially if it be of poor quality. As a matter of fact, the comb honey from California is just as different from the article produced in the Central and Eastern States as the fruits of that State are different from those in New England. In the same way, the honey from Texas differs very widely from that produced in Ohio, or honey from Florida from that in Texas. Some honeys, like that from buckwheat, are very dark; others are not only dark but ill flavored, and should never be sent to market, but be sold to the baker or fed back to the bees for rearing young bees.

Two-thirds of the States in the Union have pure-food laws; and one may rest assured that in all the States where such laws are in force, both honey in the comb and in the liquid condition, generally called "extracted," is and must be the genuine product of the hive.

The oft-repeated misstatements about adulterated honey and manufactured comb honey in the newspapers and magazines has made it necessary for The Honey-producers' League to put out this statement, for the reason that the general public has come to believe that a large part of the honey on the market is adulterated or manufactured. If the dealer will join with the bee-keeper in helping correct these monstrous lies, it will materially increase his sales of both comb and liquid honey. THE HONEY-PRODUCERS' LEAGUE.

George W. York, Manager, Chicago, Ill.
Dr. C. C. Miller, President, Marengo, Ill.
George C Lewis, Vice-pres., Watertown, Wis.
W. Z. Hutchinson, Sec'y, Flint, Mich.
A. L. Boyden, Treas., Medina, Ohio.

N. B.—*Do not store comb honey in a refrigerator, cold storage, or cellar.* These are the very worst places you can put it. It should *always* be put in the warmest and dryest room you have. It is advisable to keep liquid or extracted honey in the same warm dry place.

If the Honey-producers' League had never done any more than to get the manufacturers to assume the cost of the printing of a circular of this kind it would have fully served the purpose of its organization. These leaflets will go to the very fountain head of the comb-honey lies—namely, the grocer and his smart clerk, who have often repeated the story about manufactured comb honey, and are keeping it alive. But these same smart chaps have always some real honey for sale. Bee-keepers all over the country, if not already supplied with these circulars for shipping-cases, should send to Manager York for some. They will be supplied by him at the rate of 50 for 10 cts., postpaid.

NOMINATIONS FOR THE NEXT ELECTION OF OFFICERS OF THE NATIONAL BEE-KEEPERS' ASSOCIATION.

THE following, just received from General Manager N. E. France, will explain itself:

> The following terms of office expire Jan. 1, 1906: President, J. U. Harris; Vice-president, C. P. Dadant; Secretary, W. Z. Hutchinson; General Manager and Treasurer, N. E. France; Directors, J. M. Hambaugh, C. A. Hatch, Dr. C. C. Miller. All members are requested to send me on postal or by letter by Sept. 20 their nominations for above offices. The two receiving the highest number of votes for each office will be considered the candidates to be voted for at the November election.
>
> Platteville, Wis., Aug. 22 N. E. FRANCE.

The *Review*, in commenting on this, calls attention to the fact that we have been in the habit of giving the President two terms and then passing the honor to somebody else—usually the Vice-president. The present incumbent, Mr. Harris, having had two terms, he suggests for President the present Vice-president, Mr. C. P. Dadant, of Hamilton, Illinois. More than any other bee-keeper in this country, perhaps, he is a representative of the bee-keeping industry of two continents. The name "Dadant" in nearly all of Europe is emblazoned out strong on the apicultural horizon. That the same name enjoys no less the confidence and esteem of the bee-keepers on this side of the big pond is equally true.

Elsewhere in this issue Mr. J. A. Green nominates Mr. O. L. Hershiser, of Buffalo, N. Y. As he is a lawyer by profession he would, of course, make a good presiding officer. He is a practical bee-keeper, owning and operating several hundred colonies. In the work of the National he has always taken a leading and active part. Both men are worthy of consideration.

As a candidate for Vice-president, Mr. G. E. Hilton, of Fremont, Mich., a bee-keeper of many years' experience, and a parliamentarian of the first order, is mentioned.

As Secretary to succeed himself, our brother suggests Mr. J. A. Green, of Colorado, so well and favorably known to our readers.

As to the General Manager, Mr. N. E. France, Mr. Hutchinson doubts if we could ever secure a better one than the present incumbent, and I believe the great majority of the members share that opinion.

While it has been the custom to pass around the honor of the other offices, yet as a matter of fact there are very few who are both available and at the same time fitted to fill so important an office; and when we have a good man it possibly might be well to hang on to him. Still, as a possible opposition candidate, Mr. Hutchinson would suggest the name of Mr. Frank Rauchfuss, of Denver, Col. He would be peculiarly well fitted for the position; but knowing him as I do, and believing that he is already overworked in his present position as Manager of the Colorado Honey-producers' Association, I doubt if he could be prevailed on to accept the office.

As a successor to Mr. J. M. Hambaugh, as Director for California, Mr. Hutchinson suggests the name of Mr. M. H. Mendleson, one of the most extensive bee-keepers in California.

For Director for Wisconsin, to succeed C. A. Hatch, he would suggest another equally prominent Wisconsin bee-keeper, Mr. Franklin Wilcox, of Mauston.

To succeed Dr. C. C. Miller, in Illinois, he names M. M. Baldridge, of St. Charles.

There you have the whole lay-out; and while, as Mr. Hutchinson says, some may differ regarding the merits or choice of possible candidates, he feels that nominations ought to be made by some one who knows the men. Without some discussion the members themselves might be at a loss as to who are available or well fitted for the positions mentioned. There is nothing to prevent other nominations being made. In endorsing these names GLEANINGS has no desire to "run" the Association, but believes that the "slate" suggested is well worthy of consideration. On the other hand, there may be some old officers who should be retained.

N. B.—On reading the foregoing, one might surmise that the *Review* and GLEANINGS editors had had their heads together, but such is not the case.

THE ALEXANDER BEES; THE ROAR OF BEES IN FLIGHT FROM ONE YARD OF 750 COLONIES.

I HAVE just returned from a thousand-mile trip (by rail), among the bee-keepers of the East. When I started out I had no expectation of seeing any others than Mr. E. W. Alexander in the height of his buckwheat-honey flow, and Swarthmore in his queen-rearing operations; but incidentally I saw a few others. I have gathered some valuable material and data which will, as space permits, be placed before our readers.

Day before yesterday, Aug. 22, I stood in Mr. Alexander's mammoth bee-yard, located at Delanson, N. Y., watching the bees come in from the fields of buckwheat and goldenrod on the distant hills. I have been in a good many apiaries, have *traveled thousands of miles to see bee-keepers*, but I never saw the like before. If you can imagine ten or twelve swarms all in the air at once you can have some faint idea of the tremendous roar of bee-flight of the Alexander bees to and from the aforesaid fields. I had purposely timed my visit to take in this wondrous sight; and, while my expectations had been raised very high, I simply stood spellbound at the incessant streams of bees coming in from all directions. Why, say, I doubt if any one could have fired off a shotgun toward the horizon without killing many bees. Just think of it—*750 two-story colonies all in one locality*, bringing in honey at the rate of *a ton and a half a day*, weather permitting! Just imagine, if you can, that, in their wild rage for honey from buckwheat and goldenrod, one-half of the bees, say, are in the air. Estimating each colony to have about six pounds of bees, this would make in the air 15,000 bees per colony that are either going or coming from the fields. Multiply this number by 750, then focus the flight to and from one spot, all in one yard. You can imagine the rest.

Mr. Alexander has consented to prepare a series of articles, fully illustrated by a series of photos that were taken on the spot by myself and Dr. Lyon. As he has said, he has been willing to sacrifice a whole crop in order to learn something; the result of his many years of close observation and experimenting will be focused down into a valuable set of articles which will appear in forthcoming issues of this journal.

It may be inferred from what I have written that Mr. Alexander's locality is a veritable bee paradise. Such it undoubtedly is *some seasons*. Some may conclude that would be a good place in which to locate. Perhaps; but would it be fair or right to put some bees in Mr. Alexander's bee-range? There can be only one answer from a moral point of view, and I hope no one will do it. Mr. Alexander's bees cover a radius of some three or four miles; and if any one were to place some bees just outside of the territory, he would infringe on the rights of some *other* bee-keeper. Black brood is not all cured in Eastern New York, and an "outsider" would run a fearful chance. As a rule, a desirable location is generally taken up by "oldtimers" who know it thoroughly, and a new comer unacquainted with the conditions would have very little show.

A VISIT WITH SWARTHMORE.

From Delanson I went straight to the Swarthmore queen-rearing yards near Philadelphia, and had the great pleasure of seeing Mr. Pratt demonstrate to the satisfaction of several of us that he could do exactly what he has claimed. Several bright brainy bee-keepers, and among them Mr. J. Hooker, an English bee-keeper of note, have told me that this man was a genius, and that there was probably no bee-keeper in the world who knew actual bee-life more thoroughly than this mild-mannered queen-breeder. When he showed his method, and demonstrated what he was able to do, I felt as if I were indeed standing at the feet of a genius.

A GENIUS IN THE PRODUCTION OF FANCY COMB HONEY.

Quite by chance, and most unexpectedly, I ran across another genius, but this time in comb-honey production, in the person of Mr. S. D. House, at Camillus, N. Y. He is not only a genius in the production of comb honey, but an expert in making demonstrations of practical work among bees inside of a bee-tent or cage, said cage being a part of his honey and wax exhibit located in one of the main buildings of the State fair at Syracuse. The system he has adopted for producing an extra quality of fancy comb honey involves the use of the Betsinger wire-cloth separator, plain sections, and super. This, in connection with a system of comb-honey production that he has worked out, produces a class of comb honey that is a large percentage fancy. He demonstrated to my satisfaction that his system, in connection with the Betsinger super, will produce a grade of honey far superior to that produced by even the fence system.

He likewise has consented to tell us some of the fine points of the new system. I said "new;" much of it is indeed old, for it involves the use of the Betsinger wire-cloth separator that was, many years ago, prematurely condemned and buried out of sight until this genius dug it up.

ANOTHER COMB-HONEY LIE BEARING THE SEMBLANCE OF OFFICIAL RECOGNITION.

IN Northern Ohio a statement got into some of the local papers — one at Port Clinton and another at Bellevue, to the effect that the Pure-food Commissioner of Ohio had broken up a band of medical students who were selling manufactured comb honey —combs made of paraffine, etc. We immediately wrote to the Ohio Pure-food Commissioner, asking for the facts in the case. Here is his reply:

OFFICE OF
DAIRY AND FOOD COMMISSIONER,
COLUMBUS, O., Aug. 10, 1905.

Mr. Root:—I have your letter of August 9, with newspaper clipping enclosed, with reference to the Department breaking up a band of medical students who were paying their way through college by selling spurious honey, the comb of which was made of beeswax and paraffine. The Department broke up the sale of some spurious honey. The Inspector believed the salesmen were students I do not know how the report got started in the papers, but there seemed to be a good basis for a newspaper story, and I presume some correspondent drew on his imagination to state that the comb was beeswax and paraffine, and then other papers took it up. No such information could have come from the Department, for the Department has not yet discovered any artificial comb thus made.

HORACE ANKENEY, Commissioner.

It is just as I expected. Some newspaper got hold of some stray facts, and made up the usual story. As the Food Commissioner did break up a gang of medical students who were selling adulterated honey, the newspaper clipping has some semblance of official recognition. I hope our readers who run across this story (as it is and will be copied in the papers) will be prompt to make an extract from this journal — tear out this whole page, and mail it to the editor of the paper, requesting, if possible, a correction.

GENERAL
CORRESPONDENCE.

SHAKEN SWARMS, AGAIN.

Some of the Difficulties Explained; When to Shake for Both Comb and Extracted Honey; Large and Small Hives.

BY L. STACHELHAUSEN.

[As some of our correspondents encountered some difficulties the past season with shaken swarms, and others made an entire failure of them, I asked Mr. L. Stachelhausen, the pioneer and the introducer of the plan in America, to review the subject and to explain, if possible, some of the causes of failure. This has been done so well in the subjoined article that no one can fail to understand it in all its different phases. In saying this I think it but proper to state that our correspondent knows more about the practice, both in this country and in Europe, than any other bee-keeper in the world.—ED.]

By reading different bee-journals I find that a few things in making these artificial swarms are not properly understood by some bee-keepers. For this reason it will not be out of place to say a few words more.

1. There is no agreement about the time when a shaken swarm shall be made. Some say it can be made as soon as the colony is strong enough; others advise waiting till queen-cells are started; and the editor, page 527, even thinks the absconding, which sometimes happens with such swarms, may be caused by shaking a colony, when there was no indication or desire to swarm in the old colony. Whether we shall wait for queen-cells or not depends on circumstances. If we have a strong colony in a large hive, there is no reason why a shaken swarm could not be shaken successfully, queen-cells or none. I have made hundreds of such swarms without waiting for queen-cells. If we work for extracted honey, and want some increase, the swarm can be made as soon as the colony is strong enough. But suppose we work for comb honey and keep our colonies in small hives (eight-frame Langstroth). We have given a section-super, and probably the bees have already commenced to work in the sections. At such times we should probably get more section honey from this colony if it would not swarm at all. For this reason the proper way will be to wait till the colony makes preparation to swarm; and as we do not want natural swarms we make one artificially because a natural swarm would come out a few days afterward anyhow.

But in my opinion it is better to use a larger brood-chamber in the spring, because we shall raise a much stronger colony in it with less work than in these small hives. When the honey-flow commences we make the shaken swarm, no matter whether queen-cells are started or not, and hive it in a small brood-nest (six-frame Langstroth size), and give the section-supers to this swarm. Generally these colonies in large hives are not inclined to swarm, consequently it is out of the question to wait for queen-cells. The shaking of the bees here is not for the purpose of anticipating swarming, as in the former case, but to force the bees into the sec tions by a contracted brood-nest without combs. This leads us to another question.

2. Shall the shaken swarm be hived on drone-combs, full sheets of foundation, or on starters?

About 18 years ago W. Z. Hutchinson published a little book in which he described his experiments in hiving swarms on combs, foundation, or starters if worked for comb honey, and at that time this little book settled the question that it is more profitable to hive swarms on starters only in a contracted brood-chamber than in any other way, and the reason was given why it is so. As this is true now just as well as eighteen years ago, and just as well for artificial swarms as for natural ones, it seems there could be no doubt if comb honey is to be produced. Nevertheless, there is room for a question. By the use of starters in the brood-nest a small amount more of section honey may be secured then by the use of full sheets of foundation; but in the later case nicer all-worker combs can be secured without any loss of time and labor. For this reason, at certain times it may be more profitable to use full sheets of foundation in the brood-nest. Every bee-keeper has to decide this question for himself. The use of drone combs is always a loss except, perhaps, when extracted honey is produced, and even then I would not allow it.

The use of empty combs or full sheets of foundation has no influence on the fact that sometimes natural or shaken swarms come out and abscond.

3. This swarming-out of shaken swarms on one of the following days, or of starting

queen-cells on a comb of brood given to them, is the most frequently raised objection to these shaken swarms.

If we shake or brush all the bees of a colony with the queen into a hive and set it on a *new* stand the old bees will return to the parent hive on the old stand; and as such a swarm, containing young bees only, will never think of swarming out or starting queen-cells, we can give to this swarm capped or uncapped brood. If the same swarm is set on the *old* stand, and the parent colony on the new one, the bees act differently. The old bees returning from the field, and finding a nearly empty brood-chamber, are very uneasy; and if the swarming impulse is already incited they will very probably swarm out or make preparation to swarm. Some of the old bees may enter neighboring hives and unite with them; even the queen may be killed in the general disturbance. To avoid this, at least one frame of mostly unsealed brood should be given to the swarm. This will keep the colony together.

Whether this frame of brood can remain with the swarm depends on circumstances. Some races or strains of bees are more inclined to swarm than others. In some localities the bees swarm considerably more than in others. Some years are more favorable for swarming than others. Last, but not least, if the colonies are always kept in small hives they are more inclined to swarm than if large hives are used during development of the colony and during swarming time. At such times, which are favorable for swarming, a large part of the shaken swarms, if we let them alone, will swarm out or will make preparations to swarm, and refuse to do much work. If, besides the brood, some honey is given to the shaken swarm the probability of swarming out is still greater; and if the old colony has already started queen-cells the shaken swarm is nearly sure to swarm out. To avoid all this the brood-comb must be removed the next morning after making the swarm, and then we shall have no more trouble.

At other times, if the bees are not inclined to swarm, the brood-comb can be left with the swarm; but the swarm should be examined the following day. If some cells are built of the worker size, everything will go on all right; but if the swarm did not build at all, or made some drone combs, the brood must be removed at once or the colony will swarm out soon.

4. Sometimes the reason for swarming out is that the hive is too small for the swarm, and is overheated by the uneasiness of the bees. This may be so if we give a contracted brood-nest, and over a queen-excluder a section-super. For this reason we should give a full-sized brood-nest at first, and contract it afterward when the bees have commenced to build combs. If divisible brood-chambers are used we should at first give an empty story under the one which the swarm will have permanently, and this empty story should be removed the next day, when the bees have settled down to business.

5. It is said that, by shaking the bees in front of the hive, they crawl in the grass and up one's trowsers legs, resulting in more or less stings and inconveniences.

This can easily be avoided if we shake and brush the bees directly into the hive. We set the hive with the frames on its stand, and on top of it an empty hive-body. Into this we shake or brush the bees, and not in front of the hive. It is not necessary that a single bee fall outside of this hive.

6. If we make a number of shaken swarms in one of our yards we avoid shaking two colonies close together. If this should be necessary we work, after shaking the first colony, in another part of the apiary till the first-made swarm has quieted down somewhat.

I think I have explained every thing which could cause a failure in making shaken swarms. I have had much general success with these swarms for 25 years, and have described the way I make them as plain as I was able to do, so that I can't understand why others report failures with this kind of swarms.

Converse, Texas.

MOVING BEES WITHOUT CLOSING THE HIVE-ENTRANCES.

To do this Successfully One Must Understand the Habits of Bees.

BY W. L. PORTER.

I have been interested lately in the many good hints in regard to handling bees in out-apiaries. There is one kink which I have been practicing for some time that has saved me much time. Every season there is more or less moving of bees to equalize yards to form new ones, and often to get bees in better pasture. It used to take me much time to fasten in the bees and get them ready to handle. I found, after experimenting, that in many cases they did better when the entrances were not closed with wire cloth, as, when bees are shut in, they immediately commence to worry and get up a great amount of heat, which is apt to smother them or melt down their combs.

SAVES TIME AND BOTHER.

It certainly is a great saving of time to be able to drive into the yard and immediately commence to load on the bees, and in a few minutes be able to drive off with a load; and when they are at their new location they do not rush out with such confusion as when they are penned in.

I have moved them in nearly every month of the year in this way, and thus far with the greatest success.

LOAD WHEN BEES ARE NOT FLYING.

The loading is always done when the bees are all in, either very early in the morning or late in the evening or on cloudy and cool days when the bees are not flying. The bees are smoked before putting on the wagon; and if these are inclined to come out while loading, a whiff of smoke is given to them to keep them in until all are loaded. I then cover all with a good wagon sheet.

NO TROUBLE AS LONG AS WAGON IS MOVING.

Then I hitch on the team; and as long as the wagon is kept in motion there will be no trouble, as the bees will cluster quietly in the hives, and a bee seldom tries to escape.

I have moved them part of the distance one day, and the next morning, bright and early, finished the distance. Last year, in February, a party in Boulder County rented one hundred hives of me. When he came for them I told him to try moving them without closing them in. He hesitated, but finally said, "If you will take the risk I will." The bees were moved in three loads, making the thirty miles in one day each time.

FREQUENT USE OF SMOKER.

The days proved to be warm, and the smoker had to be used some while the horses were eating their grain at noon. This method not only saves time, but the bees seem to stand the moving better. Of course, the man who tries this method must be "on to his job," and understand the habits of bees. If the weather is warm there can be no stops on the way.

Denver, Colo., June 23.

[We have had reports like this, and I think we may safely conclude that bees can be moved without closing the entrances; but I would advise every one trying the experiment the first time to have the king-bolt, or pin that goes through the double-tree, so arranged that he can withdraw it instantly and release the team. Then there should also be an attendant on the load, with a smoker, ready for an emergency.

I know that a colony that is frequently jounced or jarred will soon become quite tractable. The jar frightens the bees into a state of demoralization. But let the hive stand still for a few minutes and the bees will soon recover themselves enough to make things interesting both to the man and team.

We should be glad to get reports from others of our correspondents. In the mean time I propose to have it tried in moving our own bees in from the outyards this fall.—ED.]

* * *

THE HOME OF THE HONEY-BEES VISITED

By a Delegation of Schoolteachers from all over the United States. See p. 914.

BY E. R. ROOT.

On the 8th of July a delegation of something like 150 schoolteachers, who were in attendance on a summer school at Wooster University, took the trolley line at that place for Medina. The delegation was headed by Dr. E. F. Bigelow, of Stamford, Ct., one of the editors of *St. Nicholas Magazine*. The doctor's specialties are nature and science studies, and at this particular time he had just finished a course of lectures before the teachers at the university mentioned. Being an ardent bee-keeper he was the means of getting the delegation of teachers to visit the Home of the Honey-bees in one big swarm, and it was a swarm indeed, with Dr. Bigelow as the king bee.

On arrival at our plant the teachers were provided with bee-veils, then inducted into the theory and practice of bee-keeping at our home yard. The company was divided up into little squads, each squad having one of our apiarists as chief instructor and manipulator, while Dr. Bigelow himself was the presiding genius of the whole thing.

It so happened that a little swarm of bees was hanging on one of our grapevines. With this as an object-lesson we succeeded in showing how bunches of these bees could be picked up by the handful. We even went so far as to demonstrate to the teachers how they themselves could run their hands into this cluster of bees without getting a sting. It was surprising to see how many volunteered the act. There were, perhaps, a dozen or more who ran their hands clear into the center of the cluster, and carefully withdrew them; and when one after another succeeded in the trick without harm the others were rendered more bold.

So apt were our pupils that we permitted them to pick the frames out of the hives, to handle them, to hunt the queens, watch said queens in the act of laying, examine the brood in its various stages, pick out the drones, and, last of all, lay the bare hand on the bees as they were clustered on the brood. Some exclaimed, "What beautiful little kittens!" "What lovely little pets!" "I never had an idea they were so gentle!" "I did not suppose *any one* would be able to do what we ourselves have done without so much as a sting."

I do not know who it was, but some one conceived the idea of having a group picture taken of the teachers, each holding a frame of brood and bees. The suggestion was no sooner made than preparations were under way for putting the idea into execution. As the bees were very gentle, the doctor suggested that the teachers all lift their veils, while he himself removed his entirely. Some of the teachers had gone; but those who were left formed a semicircle holding the frames in various positions as here shown, and which are here reproduced direct from the photo. Dr. Bigelow himself sits in the foreground with his left foot resting under his right knee. The others are in a balf-sitting posture in the foreground, while those in the rear stand at full height.

It was impossible in the limited time to get in the entire group; and then, besides, to tell the actual truth, we were somewhat nervous for fear that a single bee might cause a stampede in the company. The camera was hastily, not to say nervously, set up, and an exposure made, with the result here shown. If there was ever an evidence that raw beginners can be taught to handle bees, without fear, in a single lesson, it is presented right here. I was under the impression that not a sting had been received; but I learned afterward that one or two of the teachers, accidentally pinching a bee, had received a pointed reminder; but, in strict obedience to orders, each kept perfectly still, brushed out the sting like a veteran, and held up his (or her) frame as if nothing had happened. Several little lectures were delivered that day to the company, and question after question was fired at the speakers. Never was a more appreciative audience at the Home of the Honey-bees.

Most of the teachers had supposed that such a thing as manufactured comb honey was everywhere in evidence in the market; but before they left we took pains to see that every one of them was carefully instructed on that point. They all promised to refute the lie on every occasion presented, and there is no doubt that they will.

Referring to Dr. Bigelow again, perhaps I ought to mention that he is the one who wrote the article on the "Educational Hive." This article appeared on page 476 for May 1st, this year. He has made this particular subject a special study in order that he may instruct teachers and educators generally how to learn bee-life from the standpoint of the nature student.

As a lecturer he was pronounced, by the teachers present that day, as an unqualified success. Indeed, I can personally certify that he had every one fired up to the highest pitch of bee-fever; and wherever he goes I understand he delights his audiences. He has had many calls for lectures in different parts of the country; and if any of our readers should be in the vicinity where he will speak they should be sure to avail themselves of the opportunity of hearing him. While he does not profess to be a practical bee-man, yet from my visit with him for a few hours I saw that he had delved into departments of bee-lore never dreamed of by the practical bee-man. He has promised to write some articles for Gleanings, which I think will not only interest but instruct some of the old veterans in the business.

I nearly forgot to say that the reader will see a Langstroth frame in the hands of one of the gentlemen in the right foreground, divided off into six divisions. These divisions are nothing more nor less than little Swarthmore frames which we put into full-sized hives for filling out with honey and brood preparatory to putting in the baby nuclei themselves. One of these frames will supply three such nuclei. And this reminds me that the company here shown was inducted into the science of queen-rearing, also, from the laying of the egg to the full-fledged queen-mother laying more eggs.

It may be interesting to note in this connection, also, that the picture is a practical evidence of the gentleness of the red-clover strain as reared at the Home of the Honey-bees. At almost any time one may go through this yard without fear of a sting, although there are times when, of course, it is advisable to wear a veil.

The large evergreens in the rear constitute a windbreak on the north. A similar windbreak, not shown in the picture, is on the left, or what is the west side of the yard. One corner of the main building just barely appears in the picture on the right.

BEES AND A "CABIN IN THE WOODS."

Producing Comb and Extracted Honey in the Same Super; Chunk Honey instead of Section Honey.

BY MILLARD A. HUDSON.

In August, 1898, I discovered a small cluster of bees on a rail fence. A hasty investigation showed that they had been deprived of their beautiful home, a fine large beech-tree, by robbers who had carried away a tubful of honey, bee-bread, young bees, and sawdust. I was informed that, if I wanted the bees, I could have them. As I had no hive, a pine shoe-box was converted into a temporary hive by sawing a V-shaped notch in the edge and fastening some of the pieces of comb on the inside. This was then turned upside down on a board. With the aid of a little smoke from some burning rags the bees were driven into the box, which was then carried and placed in our front yard, which was on the other side of the "cabin" at that time. We now live in a new and up-to-date cabin, and this one is used for honey-house and shop. The next year (1899) I did not get any swarm nor any honey.

The following winter I was seized with a desire to learn something about bees and how to handle them with profit. The A B C of Bee Culture was sent for, and also Gleanings, and several catalogs of supplies were obtained. After a thorough search of the catalogs and the A B C, an eight-frame Dovetailed hive, with Ideal super and self-spacing frames, was the one decided upon and ordered. In June, 1900, a swarm issued from the pine box, and clustered high in an apple-tree. The new hive was brought out, and, after much climbing and sawing-off of limbs, they were finally hived. This was my first attempt at hiving bees; and since it was not a very pleasant one I decided to clip the wings of her royal highness, which I did according to the A B C. While I have not depended on swarming for increase, this clipping has been a source of satisfaction to me. In 1903 I sent for a queen to replace the old one; but after an examination of her colony, and seeing such full frames of brood, and conditions better than in any of the others (I now had seven), the old queen was *not* beheaded, and the new one was at once allowed her freedom on hatching brood taken from this old colony. Several of my colonies were started from brood taken from this same colony, two frames being taken this year, and yet after *all* this depletion of brood her colony is strong in bees, and doing very good work. Five years in one hive seems a long time for a queen to live, yet she may be seven years old or more.

The stack of supers shown, and another stack of half-depth supers, not shown in photo, have all been on, and are being taken off full of comb and extracted honey. Mr. D. R. Waggoner's plan of tacking on little strips to the escape-board, page 547, is certainly a good one. I have tried it, and can say that it works well.

While some of the writers are giving their plans for comb and extracted honey from the same colony I will give mine. I start my bees, as early as possible, to storing comb honey in shallow frames with thin foundation, one imbedded wire running lengthwise through the middle of the frame. Bait combs are a great help to mix in with the foundation. As soon as bees are extra strong, or show signs of swarming, all the brood is hoisted up above the excluder, except one frame of brood containing the queen. The rest of the space below is filled in with combs and foundation. In seven or eight days I look for cells above the excluder. If there are any I cut them off, and this settles the swarming with me. As soon as the shallow super (which is on top) is about completed, another super with foundation or combs is slipped in next to the queen; and as fast as the brood is hatching out above this, the full-depth combs are being filled with honey for extracting. The honey is cut out of the shallow frames in two long strips, and afterward cut into lengths to fit any sort of vessel or bucket. The wire is left in the frame for more foundation. With a little chisel of the proper width the groove in the top-bar is quickly cleaned and made ready for more foundation. I use a glue-pot for melting the wax, and a tablespoon in preference to the wax tube, for fastening the foundation in the groove.

A few of my customers and friends have some peculiar ideas in regard to the genuineness of the honey in the "little square things" at the stores, but my honey they *know* is the real thing.

Like Dr. Miller, I shall not "lie awake nights" owing to the growing scarcity of basswood for sections, but, instead of using a four-piece section, shall stick to my shallow frames.

Greensburg, Ind.

[I do not see that you, anywhere in the article, say any thing about those hives wrapped in paper or oilcloth. If this was for the purpose of wintering we should like to know how it worked.—Ed.]

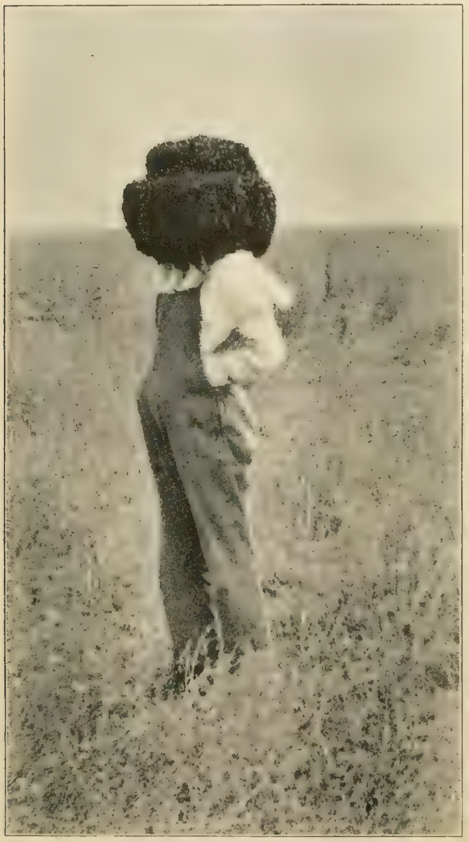
THE CABIN IN THE WOODS AND THE APIARY OF MILLARD A. HUDSON.

A SWARM OF SCHOOLMA'MS AND SCHOOLMASTERS AFTER TAKING THEIR FIRST LESSON IN BEE KE G AT THE ROOT CO.'S APIARY, MEDINA; A PRACTICAL DEMONSTRATION OF THE GENTLENESS OF THE RED-CLOVE RAIN OF BEES.

KODAKING AMONG THE BEES.

BY MRS. E. PRIESTER.

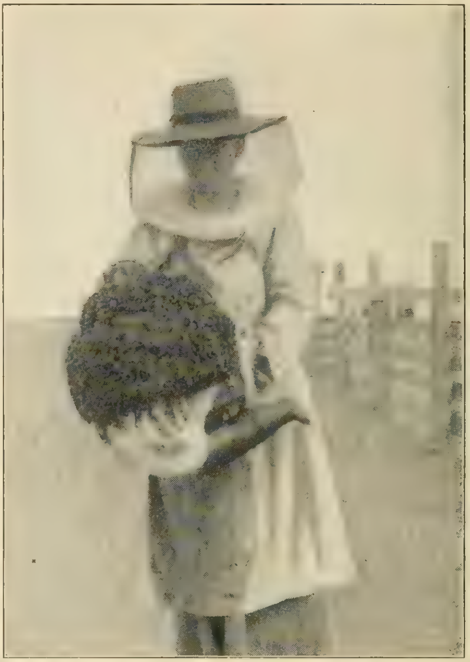
My daughter now and then takes a few pictures. I will send one where a swarm of bees alighted on a boy's hat; also one where I hold the hat in my hand after taking them off his head; also one of my bee-yard with myself and boy in it. As you will see, I make my bee-hats by sewing a piece of wire cloth, such as is used for window-screen, around a common wide-rimmed straw hat, then sew a curtain of mosquito-bar around the lower edge of wire; then I wear an apron like a butcher's, and tuck mosquito-bar under the apron, which gives me a chance to slip my hand under the apron and wipe my face or take a drink, etc. It is much cooler than a veil. I wish the one on the hat were good enough to go into the prize contest, as I think it is seldom a swarm is caught in that way.



THE SWARM ON THE HAT.

Conundrum: Did the swarm capture the boy or did the boy capture the bees?

I wish Mr. Root would come to this part of California, the Sacramento Valley. You folks think if you see Southern California you have seen it all; but you would find lots of good country and good people here.



MRS. E. PRIESTER IN HER BEE-SUIT WITH A SWARM OF BEES ON A BEE-HAT.

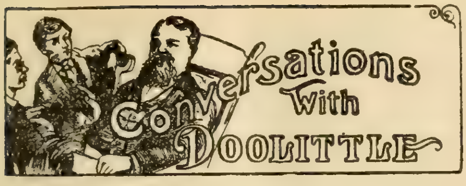
I have 113 hives of bees now, but aim to have only 100, so I am trying to learn to keep from increase as long as I keep bees.

I would not do without GLEANINGS, as I enjoy A. I. R.'s writings very much. I have kept bees over forty years, but only about eight years in modern hives. I just run for comb honey. They were box hives.

I was raised in Iowa, but crossed the plains in 1863; am now 58, but will keep bees as long as I am able to attend to them.

Davisville, Cal.

APIARY OF MRS. E. PRIESTER.



FEED FOR BEES AND FEEDERS.

"How has the season for honey proved with you this year, Mr. Doolittle?"

"The crop of white honey is scarcely up to the average this year—probably not more than fifty pounds of section honey to each old colony in the spring. I do not have it all off yet, but judge that fifty pounds will be what I shall get. Have you yours off yet, Mr. Brown?"

"Yes, and it is very little indeed that I have. I do not think I have more than an average of 20 pounds to the hive, and what I have is badly colored and mostly from mustard. But that is not the worst of it. My bees have little honey in their hives, and there is very little buckwheat sown, the farmers having put out cabbage in place of buckwheat, and it seems to me I shall be obliged to feed mostly for winter stores."

"There is scarcely any buckwheat hereabouts, but I think the bees have sufficient for winter stores now, if they can only procure a living from now till October, which I hope they may."

"Well, if you had my prospects what would you do?"

"I think I should wait till about the 10th to 15th of September, and then if the bees did not have sufficient stores for winter, with no immediate prospects of their getting such, I would feed."

"Yes, and that is just what I wished to talk about. How and what shall I feed?"

"Have you any honey in frames hung away for winter?"

"No. If I had, the matter would be simple."

"Then you will have to feed sugar."

"Yes, and I wish to know how best to feed it."

"Some make it into candy, similar to the candy used in the cages for sending queens by mail."

"Yes, I am told so. But is that the best way?"

"That will do where colonies have nearly honey enough for wintering; but if greatly short, I doubt the advisability of so using."

"Well, what would *you* do?"

"My way has been, where colonies had to be fed for winter, to make a syrup as follows: Put 15 pounds of water into a vessel that will hold from 24 to 30 quarts, placing the same over the fire till it boils, when 30 pounds of granulated sugar is slowly stirred in, so that it will dissolve instead of settling to the bottom and burning."

"Is it liable to do this without the stirring?"

"If the fire is hot, and the 30 pounds is poured in all at once it is so heavy that it will stick to the bottom and burn before the water will get under it. After you have the sugar stirred in, wait till the whole boils again, when you will set it from the fire and stir in 5 pounds of extracted honey. This will make fifty pounds of feed fully as good as honey for wintering, and some claim better."

"What is the extracted honey put in for?"

"To keep the syrup from crystallizing in the feeders, and possibly in the combs, if the colony is small to which it is fed."

"But I thought that vinegar or cream of tartar was used for this purpose."

"So it is by some; but I find that the honey answers a better purpose, and helps along with the feed just so much."

"But suppose one did not have the honey. What then?"

"It might be well in that case to use the vinegar, as some fear that foul brood might be obtained if the honey of commerce were used. But if you have been prudent you will keep a little extracted honey on hand to use in emergencies."

"Well, after I have the syrup how am I to feed it?"

"At this season of the year I prefer to feed it from feeders, as the bees carry it where they wish it for winter, and seal it up better than they do where it is poured into the combs, as is a good plan in times of scarcity during the fore part of the season."

"But suppose a person has no feeders."

"Then the alternative is to make them or use such dishes or pans as you may happen to have about the house."

"But won't the bees stick fast in the feed, and be drowned, if the syrup is put in such things?"

"Yes, unless you make a float to keep them from doing so."

"How is this float made?"

"Some use pieces of shingles, shavings, corncobs, and such like, but I do not like any of these, as they all soak up quite a lot of the syrup. My plan has been, when using such, to fill the dish with syrup, after which I pull up two or three handfuls of green grass and scatter over it, renewing this grass every time I fill the dish. If a milk-pan is used you will rarely have to fill it more than twice, and generally not more than once."

"I see. The grass being green, and full of sap, it will not allow of any soakage as long as it is green."

"That is correct; and, besides, the bees can work all down and through it, so that not a particle of the feed will escape them, while with other floats more or less of the feed will remain underneath them, as they are too heavy for the bees to move."

"But how do you get the bees to work in these pans?"

"After having the pan filled as I have told you, set it on top of the hive and place over it the cap of the hive, another hive, surplus arrangement, or something of the kind, making all secure so no robber bees can find their way to it. Set up a small piece of board, chip, or something of the kind, so that the bees can easily climb over to the feed, when a hole is to be opened to the hive below, in some way the most convenient in accord with the hive you use, for the bees to come up through. Now scatter a few drops of feed down through the hole and over the chip, when the bees will attend to the rest, after you cover all up securely. However, if you have a little time at your command to make feeders, you will find them more satisfactory."

"How are they made?"

"From fourth-inch stuff, or something thin like picture-backing. Get out two pieces of wood the same size as one of your frames, less half an inch at the top. Nail these on each side of the frame, fitting the joints together with white lead, so as to prevent leaking. If, after making, hot beeswax or paraffine is run all over the inside, there is no possibility of leakage, and all soakage of the feed into the wood is prevented also."

"I suppose this feeder is to be hung in the hive in place of a frame."

"Exactly. And to fix for pouring the feed in, it is best to bore a hole through the top-bar, the size of any funnel you may chance to have, when, by turning up one corner of the quilt covering your colony, cutting a slit in it over the hole, or boring a hole in the right place, the funnel can be inserted and the feed poured in. If a slit in the quilt is cut, the hole in the same will immediately close on the removal of the funnel. If a hole is bored through the cover, a cork of the right size can be used in closing the hole."

"But how about a float for this feeder?"

"As the feeder is only an inch wide, there is no need of a float, as the bees can easily catch hold of one side or the other of the feeder and crawl out of the syrup, so that very few, if any, ever drown in any feeder not over one inch wide. If the feeder is made wider than this a float of some kind is a necessity."

Heads of Grain
from different fields

A NUT FOR DR. MILLER TO CRACK.

I keep a few colonies of bees for our own use. They are full Italians. Early in the spring one threw out an extra large swarm. I had trouble to get it to enter a hive (a Langstroth). In about an hour they left the hive, and divided. One part went to the mountain, and the other returned to the parent hive. In seven days they swarmed again. I had no trouble to hive them; but the next day they came out and returned to the parent hive. The same colony swarmed ten days later. I hived them in the same hive, but clipped the wings of the queen. In about an hour after they were hived they seemed to be fighting furiously, and the next morning I found a perfect queen in front of the hive, and the bees are doing finely. Now, what was the cause of this swarming? Where did this queen come from? The same hive now (the parent hive) has about as many drones as workers. Would you advise trapping and destroying them? I have trouble to get them to work in the supers. I put in partly filled sections to entice them up, but no good. The large frames are well filled, and there are some buckwheat and acres of white clover; but they do not appear to work much except in the middle of the day.

There were some fine fields of crimson clover, but I could never see a bee working on it. G. W. Reeder.

Duncannon, Pa., June 20.

[Dr. Miller replies:]

The old queen was with the first swarm. As swarms sometimes do, the swarm settled in two clusters. The one with the queen left for the mountain; the other part, having no queen, returned to the hive. Seven days later a second swarm issued, and the virgin queen may have had defective wings, and may have been lost, so that, although the swarm was hived, it returned to the old home the next day. Ten days later, or 17 days from the issuing of the prime swarm, a later-matured queen issued with a swarm, this latter swarming likely delayed somewhat by weather or something else, and this queen may have been fertilized during the act of swarming, so that your clipping her did no harm, although a risky thing to do. As soon as this swarm issued, another young queen emerged from her cell in the old hive; and when you returned the swarm with its clipped queen, there were two factions, and the faction with the unfertilized queen succumbed, and you found their leader next morning a corpse.

It would be a good thing to destroy the drones, and a better thing to suppress so much drone comb.

Atmospheric conditions or something else cause that sometimes flowers may be in abundance, yet produce no nectar, and that may be the reason the bees do not store in supers. C. C. Miller.

HOW TO REQUEEN ON IMMOVABLE COMBS.

I want to requeen two or three colonies, but don't know how to get the old queen out of the hive. They have been in these hives about five years; have movable frames, but some of the combs are built cata-cornered, and so crooked that it is next to impossible to get them out, much less to find the queen among them.

Is this a good time of the year to transfer by the Heddon method? or would it be better to wait until next spring? How could I requeen during the process of transferring by this method? J. W. STOUTZENBERG.

Greenville, Ill., July 10.

[The colonies that you refer to are practically as though they were in box hives, because the combs are immovable. I would advise you to proceed on the plan of the Heddon short method of transferring, as given in our A B C book. Drum two-thirds of the bees up into a box. Be sure you get the queen. Set the old hive to one side, and a new hive with frames of foundation in its place. Shake the bees and queens into the new hive. When combs are partly drawn out, hunt up the queen, kill her, and introduce another. Of course, you might requeen the hives just as they are by drumming the queen and bees up into the box. Put a strip of perforated metal over the box, then smoke the bees out. When nearly all out, lift the metal and look for the queen, which will probably be in the box, where she can be easily located. Kill her, then introduce an Italian queen on the old combs. But you had better by all means transfer by the Heddon short plan. You will thus be enabled to kill two birds with one stone.—ED.]

AN INCREASE IN WEIGHT OF TWO POUNDS IN A MINUTE AND A HALF.

To-day I weighed one colony of Italian bees in my home apiary — the same I was awarded the third premium in your contest — and send you the particulars, as this is a few days before the white clover will yield any honey. The bees were flying freely, and we placed them on the scale, and they weighed 135 lbs. In a minute and a half by my watch they weighed 137 lbs.; then a storm caught us and we lifted them from the scale on Monday. I am going to remove the surplus and give sections. I should like some of the contributors to GLEANINGS to make an estimate of the number of bees in that colony. I am going to keep a record of this particular colony, for the rest of the season; they are in an eight-frame Dovetailed hive of four full-depth bodies. The queen had free access to all until 16 days ago, when I confined her to the lower story, as I intend running them for comb honey. There are 47 other colonies in this yard, and very many of them appear to be nearly as strong. ADAM A. CLARKE.

Lemars, Iowa, June 17.

GREASY WASTE FOR SMOKER FUEL.

Mr. Editor:—I wish to extend to you my gratitude for calling attention to the value of greasy waste as smoker fuel. I have been trying it for several days with gratifying success. I wish to say, however, that I do not think you do the subject justice when you simply say that it makes a good volume of smoke and stays lighted a long time. These things are certainly in its favor; but there are other advantages to be realized in the use of greasy waste which, to my mind, make a stronger argument for its use than the ones you mention. So far as the volume of smoke is concerned I think planer shavings are ahead of the waste; but they do not hold the fire so well. One thing I like about the waste is that, in handling it, my fingers are made *propolis-proof.* One of the chief objections that I have to handling bees is that the propolis is so hard to remove from my fingers. When I leave my bees, to go to my books and papers, it is very difficult to clean the hands so that no mark will be left on the paper. Before I began to use the waste I had to use gasoline and hot soapy water, in the order named, to remove the propolis; but now cold water and ordinary toilet soap remove the propolis without any difficulty.

Another advantage which the waste has over wood is that it does not choke the smoker with creosote; and yet I must say that the smell of burning pine is not so objectionable in my nostrils as that of the waste. In fact, I rather like the odor of burning pine. I have hit upon an expedient to overcome this objection. I mix a few shavings with the waste.

ROBERT B. MCCAIN.

Coal City, Ill., July 22, 1905.

[We have experienced the other advantages you speak of. The oil on the fingers effectually protects them from propolis.—ED.]

FORMING A NUCLEUS.

If I take four frames of brood from a hive with queen-cells in it, the middle of July, do you think it will make a strong colony by fall? BEGINNER.

[Something would depend upon the locality; but ordinarily, if the nucleus be given stimulative feeding, if no honey is coming in it ought to make a good colony for winter. If the cells or the virgin fail, the nucleus will be weaker instead of stronger. The chances would be much better to give a laying queen at the start.—ED.]

UNITING COLONIES FOR WINTER.

Is there any objection to this plan of uniting two colonies, if you don't care to save the extra queen and don't know which is best? Put one colony over the other, with a wire screen between, an outside entrance for both. Leave about three days, then remove the screen and let the queens fight it out. O. S. REXFORD.

Winsted, Conn., July 17.

[The plan is all right, but one queen is quite liable to be better than the other. I would select the better one and kill the other. If both lots of bees are from the same yard the moved lot will give back many of its old bees to the old stand. You may have to return them a second time, then take away the old hive.—ED.]

OUR HOMES,

BY A. I. ROOT

Praise ye the Lord.—Psalm 150 : 1.

Just about three years ago I told you in Gleanings of the series of meetings that the Rev. A. T. Reed held at that Bingham church near the cabin in the woods. I told you that, although the people were backward about coming up to the "anxious-seat," as it is called, or standing up for Jesus Christ, yet we succeeded in getting forty signatures to a paper that Bro. Reed and I carried around. This paper read something like this:

"I accept Jesus Christ as my Savior and my guide through life; and I promise to do as he would have me do so far as I am able."

I had hoped and expected that those who signed that paper would sooner or later unite with that Bingham church; but although their good pastor presented the matter again and again, and gave an opportunity for those who were willing to come forward to do so, yet for quite a time nobody made a start. A few of the young ladies did eventually unite with the church, but so far as membership was concerned matters were a good deal at a standstill at the time of our recent visit. But at our first Sunday-school I was told the new pastor had announced that protracted meetings would begin just one week later. This good pastor, Rev. Mr. Shelly, has three other places to preach in so he gets around to Bingham only every other Sunday. Now, it was quite an undertaking to start a series of meetings during the month of August in that locality. Let me explain why:

Besides the ordinary farmwork, such as haying, harvesting, etc., there is just now a large canning-factory at Traverse City, and almost every farmer for ten miles around that cannery has grown one or more acres of string beans. These beans must be picked and carried to the canning-factory when they are just the right size. If left on the vines for even twenty-four hours longer than a certain time they depreciate in value and bring a much lower price. The small beans, say those weighing 300 to the pound, bring a much larger price than those that get large. As a consequence, every man, woman, and child is pressed into service to pick the beans when they are just right. Boys and girls—perhaps I should say girls particularly—often pick more beans than grown-up people. They can stand the stooping over better. These young folks often make a dollar a day, and sometimes $1.25 and even more. Well, everybody gets so tired at bean-picking that it seems a pretty hard matter to ask them to go to church week days. When I met brother Shelly, and heard him preach, I decided at once that he was out of the common run of ministers. He reminded me in many respects of dear Bro. Reed. One great feature of his work is singing; and his good wife, although the mother of eleven children, has a remarkable gift in this line. It reminds one so vividly of the methods of the Salvation Army that I asked the question whether she had not at some time in her life been connected with it. She replied that she had not. There is quite a family of grown-up girls, and they all sing like their father and mother, and, I may add, they pray as well as sing. Bro. Shelly said, I think at his first meeting, when objections were made that it was a busy time of the year, hot weather, etc., "Oh! we are going to have a revival."

As he had been recently called to take charge of this little church I was egotistical enough to think that, perhaps, I knew the Bingham people better than he did, and said to myself, "*May be* he will have a revival and may be he will *not;*" but, of course, I prayed that his efforts might be blessed. I think Bro. Shelly will not feel hurt when I tell him that, in the outset, I was prejudiced against his way of having such noisy meetings. Forty or fifty years ago I used to attend (I am sorry to say, sometimes, just for the fun of it) a good old-fashioned Methodist revival; but I supposed the shouting as well as loud praying was mostly a thing of the past. As it was a mile and a half through the woods, and over tremendous hills, Mrs. Root did not attend every evening as I did; but when she did she was shocked at so much demonstration, and especially when there were several praying at the same time. We discussed the matter in the evening after we got home, and both of us felt pained because the meetings were conducted in such a different way from what we had been used to, at least of late years. I think I had better own up that I considered for a moment not attending them any more, as they were so different from what I had been accustomed to. But what would the people of that little church and Sunday-school think of one who had been so active and earnest in urging everybody, right and left, to accept Christ and help build up that little church? Why, I had talked and urged some of my good friends so vehemently that they had been almost offended. Could I consistently stay away from even one meeting? I finally said, "Dear wife, we want to be sure we make no mistake in this matter. Let us kneel down right here and ask God to indicate to us by the Holy Spirit what he would have us do, or make it plain to us whether our good pastor is making a mistake, or whether it is not Satan that is getting hold on our own hearts by persuading us that these people are too noisy and undignified. We knelt down, and I very soon felt the Holy Spirit in my heart directing me to be present at every meeting and to take part in every thing so far as I could conscientiously. From that moment to the time I was obliged to go back to Ohio, ten days or more, my heart was in full accord with the work. In fact, it seemed to me as if the dear brother kept improving and progressing in every sermon. Now, very likely his sermons were just about the same from the beginning to the end; but it was myself that was receiving a new baptism of the Holy Spirit, and getting on to "higher ground." By the way, there is a beautiful hymn called "Higher Ground," and it got to be one of my favorites before the meetings were closed. I think it is now used in some of the Endeavor meetings and Sunday-schools. It is not only grand in sentiment but beautiful in melody. When you hear it, see if I am not right. I will quote here the first verse and chorus: *

I'm pressing on the upward way,
New heights I'm gaining every day;
Still praying as I onward bound,
"Lord, plant my feet on higher ground."

Lord, lift me up and let me stand,
By faith, on heaven's tableland;
A higher plane than I have found,
Lord, plant my feet on higher ground.

When we first came into the Sunday-school after our long absence I found the Bible-class had a different teacher; and when all the members of the church and those who love the Lord Jesus Christ were invited to come forward this teacher of the Bible-class was not among them. But I was told they had very great difficulty in getting anybody to teach that class; and this good woman consented only after much urging. Please understand that I do not object to choosing a teacher, under such circumstances, from outside the regular membership of the church. It is often done, and I think wisely so. Such teachers often unite with the church very soon after they take a class. It proved so in this case. The teacher of our Bible-class was one of the first to stand up for Jesus. Then the pupils followed here and there; more and more came forward at every meeting; and when a whole seatful of boys or young men came forward in a body I felt like shouting and praising God as loud as the pastor or anybody else. One rainy evening almost every person in the church was persuaded to come forward. Now, friends, some of you may be disposed to criticise, and say it is an easy thing to get boys and girls and others to come up to the anxious-seat, but that they do not hold out. Let us consider the matter a little; and I wish especially to emphasize the wisdom of Bro. Shelly in presenting the matter as he did. One evening he said something like this:

"Dear friends, we invite everybody to come forward who loves the Lord Jesus Christ. This coming forward here does not mean that you unite with this church, nor with any church for that matter. It simply means that you are willing to take a step in becoming a follower of Christ. You can take this first step if you choose, and never take another one. It all rests with you; but if you take this first step, and you get a blessing in so doing, we expect you will, of course, take the second step at the next meeting, and so on. You can take the first step in one minute; but it takes a lifetime to become a matured full-fledged Christian. Will you come?"

Perhaps I have not got it exactly as Bro. Shelly expressed it. I will say, for the benefit of our older readers, that among the recent converts was my friend Earl Rosa, who has worked for me for several years past, and Orville Heimforth, a young farmer whose land adjoins mine, and a lot of other boys just turning from boyhood to manhood. Alice Hilbert, of whom I have frequently spoken, is now a member of the church, a teacher of the infant class in Sunday-school, and one who is always ready to stand up in the very front for Jesus.

When Bro. Reed was here, some made the objection that he had got only a lot of children; but, three years added to the ages of those children has almost made them men and women; and those who were on hand at all the meetings a few years ago were the first to come forward at this time; and among the new converts there was quite a sprinkling of middle-aged and some elderly people.

During one of the last meetings when, as usual, there were several praying at once, the leader almost startled me by saying, "Now let several pray. Let us have a dozen prayers all at once." Talking about it afterward, the objection was made to me, "Why, nobody could hear a word if a dozen were all praying at once." I answered instantly, "That may be true; but if God hears, does it matter so very much whether anybody else hears or not?"

As there has been considerable said about emotional religion or emotional meetings, suppose we consider the matter a little. You who read our religious papers may have noticed frequent comments on the fact that many denominations at the present time are hardly holding their own in the way of membership. The number of converts does not equal the number of removals by death and otherwise; and several denominations are seriously asking what is the matter; and I believe some learned divines have at least *suggested* that it did not matter very much: that people who do not unite with any church are, perhaps, getting imbued with the spirit of Christianity. This might do very well if we were not obliged to confess the fact that iniquity and crime are becoming rampant in our land; and even some who are members of our various churches are getting so far away from their religion that they are found connected with stupendous grafts, and misappropriation of money that belongs to the people, etc. The teachings of the Bible seem to have been forgotten and trampled under foot as it was in the time of Jeremiah and other prophets. If the old-fashioned religion and emotional revivals would help us to read our Bibles more and pray oftener for the influences of the Holy Spirit, shall we not extend a helping hand and welcome the old-fashioned emotional religion?

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* From "Songs of the Living Way," published by the Pepper Pub. Co., Philadelphia.

During these meetings I have been speaking about, it was a common thing for people to come two and even three miles, many times crosslots, through the woods to the meetings. Here is another point I wish to make:

In inquiring of our young married people around Medina why they are not seen at church as often as formerly, many times the excuse is presented that there is a baby in the household. Sometimes I am told they can not both come at once on account of the baby, and so they take turns. Well, I am glad to see them take turns; but at that Bingham revival I have just told about, the baby does not hinder, for these seekers for "higher ground" take the baby along, even to the extent of carrying it half a mile or a mile through the woods and over the hills. At one of the meetings there were at least a dozen babies; and when the meeting got noisy the babies helped to make it noiser still. But they were not all crying; and, finally, I want to tell you the minister's wife, who is such a wonderful singer, came to meeting several evenings bringing her baby, the latest arrival of the eleven; and when she was singing those beautiful soul-stirring pieces the baby that lay on the bench all alone was cooing, and kicking up its feet, waving its hands, and rejoicing with the rest. If it was not happy over the new converts its beautiful little face showed that it was happy with the rest of us. *God* knows why, even if *we* do not. Now, when people become so much interested in the gospel of Jesus Christ that they can work hard all day picking beans, then walk several miles after their work to meeting, and take turns in *carrying the baby besides*, such religion *means* something. It costs something, and it is worth something after we have got it.

Some of you may say these children and others will ruin their health by overwork. I wish you could come to that Bingham Sunday-school some morning and see whether these people look "ruined" in health. I have had my eye on several in particular who, I feared, were working too hard three or four years ago when they were from twelve to fourteen years old. They are now splendid specimens of robust strength and beauty. It does not hurt people to work pretty hard occasionally in the open air, especially with that beautiful air to breathe that we have all round about the Grand Traverse region.

Once more in regard to holding out. If these young people who have taken that first step do not keep on and hold out, it is largely your fault and mine; for we who are older should see to it that they do hold out. Remember what Jesus said in his parting admonition to poor frail Peter. Twice he said, "Feed my sheep;" but previously he said, "Feed my lambs." By the way, I do not know of any more glorious work for a man or woman in this world of ours, especially elderly people, than looking after the sheep and lambs, and seeing that they are kept in the straight and narrow path that leads to the kingdom.

Mrs. Root and I spent a great part of our time during the three weeks we were there in going off through the woods to visit the neighbors, and it was a joyous three weeks. May God be praised for that revival which I was permitted to take part in, even if it was in some respects a noisy one.

Praise ye the Lord.

I copy the following from the *American Issue;* and it expresses so well what I have been thinking of and praying about for many a long day that I rejoice in the opportunity of giving it a place before our readers. How many are there in the United States who will say amen to the following, from the pen of Abraham Lincoln?

REVERENCE FOR LAW.

Let reverence for law be taught in schools and colleges; be written in primers and spelling-books; be published from pulpits and proclaimed in legislative houses, and enforced in the courts of justice; in short, let it become the political religion of the nation.

HATCHING CHICKENS OVER A BEE-HIVE — MORE ABOUT IT.

On page 527, May 15, I said I had written Mr. Decker for particulars about his discovery, etc., but that nothing had been received from him. I wish to apologize to him, for a brief statement *was* received from him; but as it was contained in an order for queens it did not get to me at the proper time. When I got ready to use it in print it was, unfortunately, mislaid, and I asked him to repeat briefly what he had written. In reply to this we got the following:

Mr. A. I. Root:—You have written to my father, H. Decker, about hatching chickens over bee-hives. He has hatched them so ever since 1895 until the last two years, or since mother died. He has not kept poultry since, so has not tried it, but says he will another year if he keeps well. He has had letters from all over the world about hatching eggs—more than he could possibly answer, and I have answered a good many for him, and he asked me to answer this for him. Yes, he received the queens, and they are doing finely. If you would like another statement about how he hatches them I will try to make it as plain as I can.

Rome, Ohio, Aug. 3. Mrs. R. H. Higley.

Many thanks, Mrs. H., for your kind reply; but as the matter has been gone over so thoroughly in all sorts of papers I think we will not ask you for any further statement. I think Mr. Decker told us in the letter I have lost that he never made the claim that a colony would give a big yield of honey, and do the work of "eight sitting hens" all at one time. See the May number referred to above. The present statement informs us that Mr. Decker has made no experiments for the past two years. From this our readers can judge what a poor foundation we have for the extravagant statements in the *Scientific American* and no end of other periodicals that wanted to give their readers something sensational.

Mr. Decker is an old man, and we may on this account pardon his boyish enthusiasm in the matter; but we can not so readily pardon the periodicals that have sent out the absurdly extravagant *resumes* of the matter. Finally, as no one has as yet, in answer to my repeated calls, mentioned any sort of success in hatching eggs over bee-hives, I hope no one who sees this will waste good eggs and annoy the bees further by any such experiments. Perhaps I might mention further that the *Rural New-Yorker*, before giving place to an article on the subject, referred the matter to us. When I told them what I knew about it they refrained from putting the article in print. If a hundred other periodicals would go to headquarters, or, in other words, to a specialist in that particular line before using such sensational articles, it would be better all around.

CATCHING SWARMS OF RUNAWAY BEES, ETC.

On page 732, July 1, I mentioned that Mr. T. W. Bryan, of Ficklin, Ill., would not send *us* his book containing his "dollar secret," but returned our money. A subscriber sends us a copy of the *Missouri Valley Farmer* to show that they are still letting Mr. Bryan use their reading columns to boom his secret. Below is a sample of the way he answers correspondents:

> A lady in Texas says she is a great lover of the honey-bee, but they sting her badly, as at swarming time, so she asks for a remedy. By allowing bees to swarm in the old-fashioned way one is apt to get stung more or less. The only remedy I know of that will cut out all this stinging, all this watching and worrying about your bees at swarming time, is to adopt my plan, and that is to fit up your hive so that, when your bees swarm, they will be conducted at once to this hive by the "home-seekers," and that does forever settle the business for that swarm.

This "dollar book" is now in my hands. It contains five very small pages, coarse print. He commences by quoting from the Bible, evidently to impress people with the fact that he is a godly man. The wonderful secret is told in two or three words. There are two ways of attracting runaway bees back to their hive. One is by the use of a piece of bright-red flannel. This may be *new*, but I think our readers will agree with me that it is not *true*. The second way is to attract the bees by scent, using the oil of anise. This *may* be true, but it is *not* new. It has been advertised for fifty years in secrets for hunting wild bees.

The little pamphlet closes by saying that, as the instructions are copyrighted, you are not permitted to communicate any part of them to your neighbors lest you violate the law as well as lessen your chance of catching bees.

NITRO-CULTURES AND THE DEPARTMENT AT WASHINGTON.

I have felt greatly pained to see in the papers intimations that graft and rascality have gotten hold of the Department of Agriculture at Washington. We have not received the particulars as yet; but our good friend Greiner, in the *Farm and Fireside*, refers to a part of the troubles as follows:

> While individual farmers here and there may allow themselves to be duped by sleek rascals, the modern farmer does a good deal of his own thinking, and as a class they are too intelligent and have too good leadership of their own to be long deceived by even the most skillfully concocted schemes, may the schemers even have a high official position. Of this we have just had another proof by the sudden collapse of the bubble of the famous nitro-cultures. Now that the gas is out of the bag, we are in a fair way to get at the solid facts in this whole business. I still believe that my earlier estimate of it was about right when I told some of the Buffalo seedsmen last winter, in answer to their question what I thought of nitro-cultures, that there is just about ten per cent of truth and ninety per cent of humbug in it. But we want that ten per cent of truth. Undoubtedly it is valuable. We should not throw the whole thing overboard because somebody has damned it, not with faint but extravagant praise. I have a whole lot of experiments under way at the present time, and expect interesting results. For the present we hardly know "where we are at," as the bulletins of the Department in Washington on this subject will not readily be accepted now as authority. The nitro-culture business has left the fad stage—we shall soon know what is fact and what fancy.

Our readers may remember that I have already cautioned them about paying $2.00 for enough of the culture to fertilize an acre, and especially where they claim that a different variety was required for each variety of legumes. Of course, no one can find fault with the samples the government sent out for trial free of charge.

GOVERNMENT PLANT-GARDEN IN CALIFORNIA TO TEST HONEY-PLANTS.

We clip the following from the San Francisco *Call:*

> The California Promotion Committee announces that the United States Department of Agriculture is establishing a sub-station in the plant-introduction garden at Chico for investigations in agriculture. A specialty will be made of testing honey-plants to be secured by Mr. Benton, of the Department, who is now in India. Bee diseases on the Pacific Coast will be investigated, and an experiment made in the different varieties of bees, among them the giant bee of India and the various specimens of the Philippines.
>
> California is the greatest honey-producing State in the Union, and the department will support an apiary and issue much information to the California apiarist. The apiary sub-station at Chico is in charge of John M. Rankin.

ARTICLES DEFENDING SALOONS AND THE USE OF BEER, ETC.

The brewers have evidently "got busy" in furnishing every periodical, that is low enough to accept it for pay or otherwise, various articles claiming that beer does not cause intemperance, etc. They are also trying to make out that President Roosevelt is a tippler, just as they tried to make out a while ago that he was a user of tobacco. Write to the editors of these periodicals that, if they give place to this kind of stuff, you will not have the paper on your premises. That is just what I have told the editors of one of the Cleveland dailies that I have heretofore taken almost all my life. It begins to look as though we had all got to stand up and let the world know "where we are at," wet or dry.

Hunter-Trader-Trapper

As its name indicates is a Journal of Information for
HUNTERS, TRADERS, and TRAPPERS.

FOXES.

This hunter and trapper has been very successful at catching red foxes. Some of the best methods used by experienced fox-hunters in all parts of United States and Canada are published, as well as methods to take otter, beaver, mink, martin, bear, etc.

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The hunting and trapping season is nearly here, and you should be well supplied with guns and traps. You should also look over your hunting and trapping grounds in advance of the active season if possible. More important for a successful season, however, is to be posted on Best Hunting Sections and Best Trapping Methods, which are published from month to month in the magazine especially for you. Subscription $1.00 a year, or single copy 10 cents.

Special Offer To all new subscribers who send $1.00 before October 10, and mention *Gleanings in Bee Culture*, four months (Sept., Oct., Nov., Dec.) will be given free, or sixteen months for $1.00.

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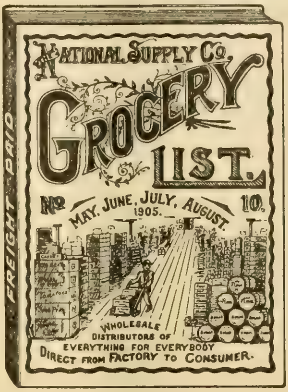
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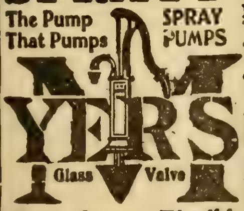

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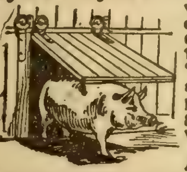

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For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

SEPT. EARLY ORDER CASH DISCOUNT.

We offer a discount of ten per cent from catalog prices on bee supply orders in September. See page 934.
THE A. I. ROOT CO., Medina, Ohio.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—To buy colonies of bees. State price and condition. F. H. FARMER,
182 Friend St., Boston, Mass.

WANTED.—A renter for a water-power bee-hive factory; complete equipment. I will market the entire output. W. H. PUTNAM, River Falls, Wis.

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301 Huntington Ave., Buffalo, N Y.

WANTED. — Honey in any quantity. State price, quantity, and quality. JUDSON HEARD,
110 South Forsyth St., Atlanta, Ga.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—To lease 800 or more colonies of bees in Cuba, by three practical bee-keepers; references given. Address J. B. STODDARD, Encinitas, Cal.

WANTED.—Bees on shares for this winter; prefer Islands or Mexico. References: The A. I. Root Co., Medina, O., or O. P. Hyde, Floresville, Texas.
MAURICE C. ENGLE, Floresville, Texas.

WANTED.—Every bee-keeper to act as subscription agent for the *Rural Bee-keeper* at the coming State and county fairs. Write for particulars
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WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey.
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WANTED.—To exchange a Ferris two-basket steam wax-extractor, cost $12.00, for a 22-caliber repeating rifle (Marlin, Winchester, or Savage) in perfect condition. JEWELL TAYLOR, Preston, Minn.

WANTED.—To exchange a lady's bicycle, in good repair, for 100 pounds No. 1 white-clover extracted honey. W. W. MCNEAL, Wheelersburg, Ohio.

Help Wanted.

WANTED.—Help for all departments of our bee-hive factory. CASCADE BEE CO., River Falls, Wis.

WANTED.—At once, a practical bee-man to take charge of a large apiary in Cuba on sharess; married man preferred. Particulars by letter.
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Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

WANTED.—Names of all bee-keepers and others who will join our carload of bee-keepers to attend the National Bee-keepers' Association, at San Antonio, Texas, Oct. 30. Excursion rates from Chicago to San Antonio and return over the Rock Island, $20.00; St. Paul to San Antonio and return via Chicago, $27.00. For further particulars address
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FOR SALE.—Leather-colored Italian queens, 50c each.
H. A. ROSS, Evansville, Ind.

FOR SALE.—Mismated Italian queens at 25 cts. each.
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FOR SALE.—Hybrid queens at 15 cts. After Sept. 10, untested at 40 cts. A. H. KANAGY, Milroy, Pa.

FOR SALE.—Ten nine-frame cols. mixed bees, at $3.50. Wired combs. B. F. AVERILL, Howardsville, Va.

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FOR SALE.—Full colonies of leather-colored Italian bees at $4.00 per colony.
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FOR SALE.—Second-hand 60-lb. cans. Guaranteed to please at 35 or 40 cts. per case of two cans each.
A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. HILDRETH & SEGELKEN,
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FOR SALE.—Italian and red-clover queens; 40c each; $4 00 per dozen. Safe arrival; will continue until Nov. 15. R. O. COX, Fort Deposit, Ala.

FOR SALE.—For cash, five-gallon square tin cans, used for honey, at about half price of new tin cans. For prices, etc., address OREL L. HERSHISER
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FOR SALE.—100 colonies Italian bees in eight-frame Dov'd and Danz. hives. Fine location; long honey seasons; continuous flow March to Nov.; no disease. Reason for selling, have no time to care for them. Prices reasonable. W. M. BAILEY, Spartanburg, S. C.

FOR SALE.—My apiaries of 300 colonies near Macon, Ga., the third healthiest city in the U. S., a ready market for output at a fancy price. Prefer selling a half-interest to a good practical bee-man to take charge. If you mean business, address for particulars
JUDSON HEARD, Atlanta, Ga.

FOR SALE.—6000 pounds choice clover and basswood honey in 60-pound cans; also one black Kentucky saddle and driving stallion, weight 1200 pounds—a beauty, sound and kind; 200 colonies bees, and fox and coon hounds. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—Paradise for bees; 320 acres of good land 1½ miles from Mercury, McCulloch Co., Texas; good farming and fruit country; 60 acres in cultivation; small two-room house; good well on place, and flowing water half mile away; terms easy. Write for particulars. EDW. SCOGGIN, Carlsbad, N. Mex.

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.
N. O. PENNY, Vero, Indian River, Florida.

FOR SALE.—We offer, for the first time, queens which produce beautiful bees. You never will be sorry if you try one of our beauties. Untested, 75c; tested, $1.00. Choice strain of leather-colored queens at same price.

F. H. FARMER, 182 Friend St., Boston, Mass.

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Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danz., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

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By ANNA BOTSFORD COMSTOCK

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field.

"Finally, with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1.*

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As the fall season approaches, poultry-keepers who have not acquired the green-cut-bone habit should determine to get in line. They are working at a disadvantage. So much has been written, all to the same purpose, that there can be but one opinion as to the advantage of its use.

The only question open for discussion is the machine to reduce it with least trouble to the right feeding form. This seems to be very well solved by the F. W. Mann Co., Box 37, Milford, Mass., with their Latest Model Bone-cutter. It has several points of advantage over ordinary bone-cutters, chief of which are its easy running and its grinding of all kinds of bone with meat and gristle without clogging, or other trouble to the operator.

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To Make a Success

of keeping bees in large numbers has been the leading theme of the Bee-keepers' Review for this year. Each issue contains one or more articles on this subject from men who have made great successes in this line; and these men are from widely scattered localities, from Vermont to California, and from Cuba and Texas to Minnesota. If you are at all interested in making your business grow until it brings you in thousands of dollars a year, send ten cents for three late but different issues of the Review, and the ten cents may apply on any subscription sent in during the year.

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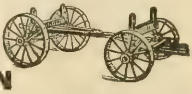

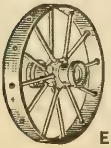

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Everything for the Bee-keeper,

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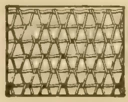

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Our folks say that your queens are extra fine.
The A. I. Root Co , Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.
J. L. Gandy, Humboldt. Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country.
E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St, Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley,
Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.
S. A. Peck, Box 124, Northumberland, Pa.

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	.....
Straight five-band breeders	5 00	.....	.....

Requeen your bees now; do not put it off till too late. Quirin's bees begin work in sections the last of April. Remember it's the early bees that make the nice white box honey. Do not delay ordering, as the queen-rearing season will soon shut down. We guarantee safe delivery. Any queen not found satisfactory may be returned inside of sixty days and another will be sent in her place. Italian queens only.

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Tested and Untested Italian Queens

Either three or five banded queens. Specially bred for their honey-gathering qualities. Price, for tested, $1.00 each, $10.00 per dozen; untested, 60c each. $6.00 per dozen. ::: ::: ::: ::: :::

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My Adel strain of Golden Italians are a wonder. They gather honey from every honey-producing flower, and are practically non-swarmers. The queens quickly fill ten L. frames with brood, winter in fine condition, and rapidly build up in spring. Testimonials of their good work, with an eight-page leaflet on queen-rearing, free.

Best breeding queens, $1.00; half dozen, $5.50; dozen, $10.00. Every trade more than satisfactory. I have the most valuable strain of bees in the world.

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HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

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Now is the time to requeen your bees. I will sell you one tested red-clover Italian queen at 75 cents; six for $4.25; twelve for $8.00. I will guarantee satisfaction, and send all queens by return mail.

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Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

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of my strain of Italians will convince you of their merit Prompt shipment. Fine queens. No disease. Absolute satisfaction—or money back. What more can you ask? Untested, 75c; 6, $4.00; 12, $7.00.

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RED-CLOVER QUEENS!

Tested, $1.00 each; untested, 75c; average queens, 65c or two for $1.00.

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PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

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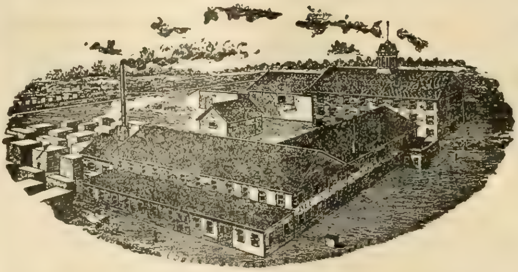

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Will tell you why if you will send for free catalog and samples.

Early-order Discount on Full Line of Supplies.

Wholesale and Retail

Working Wax into Foundation for Cash a Specialty.

E. Grainger & Co., Toronto, sole agents in Canada for Dittmer's Foundation.

Gus. Dittmer, - : - Augusta, Wis.

WISCONSIN
BASSWOOD
FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

BEST GOODS
IN THE WORLD

Best bee-hives, sections, comb foundation, and every thing the bee-keeper needs. Now is the time to buy for next year's use. *Special discount on all bee-supplies not now in season.* Lewis' goods at factory prices. Catalog free. ::: ::: ::: :::

PACKAGES FOR MARKETING HONEY !
such as shipping-cases with glass front, tin cans, buckets, glass jars with patent spring sealers and glass stoppers, regular glass fruit-jars, etc. Sample mailing-blocks for mailing samples of extracted honey. Special prices on glass honey-jars and tin buckets. ::: :::

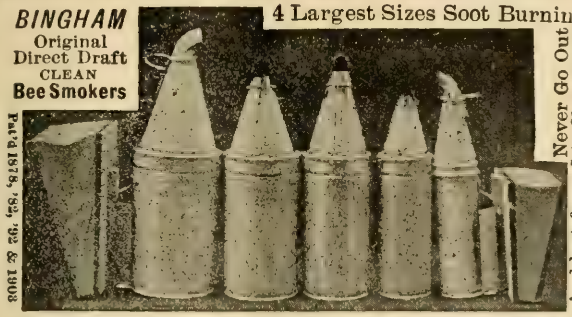
Fine - Italian - Queens - by - Return - Mail
Untested, 75 cts. Tested, $1.00.
Select untested, $1.00. Select tested, $2.00.

NEW CROP OF EXTRACTED HONEY !
If you can't supply the demand in your locality, write to us at once and tell us how much you can use, and get our price by return mail. We have an abundance of the finest honey in the world; 10 cts. for sample by mail and the 10 cts. returned with your first order. :::

PAINTS FOR HOUSES, BARNS, ROOFS !
We quote low prices on all grades of paints, and especially on paint absolutely pure. Let us quote on paint for your house. ::: ::: ::: ::: :::

Best of service given all orders. Low freight rates. Write us to-day and tell what you want.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana



BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

LEWIS

Shipping-cases, Sections, and a full line of BEE-SUPPLIES,

By Return Freight or Express.

Send to

York Honey and Bee Supply Co.,
(Not Incorporated)
(Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells Street Cable Line from center of city to Ontario St.)
141-143 Ontario St.,
Chicago, - Illinois,
H. M. Arnd, Mgr. - Long Distance Phone, North 1559.

Catalog and prices on honey on application. If you want good goods at factory prices, and prompt shipment, send your orders, or call on us.

BEESWAX WANTED!
28 cts. cash, or 30 cts. when taking bee-supplies in exchange — delivered here.

4 per cent

If You've Money Lying Idle

or invested in a way that is not satisfactory, or that does not yield you more than 4 p. c.—or, if you feel that you would like to save a portion of your earnings from time to time and deposit such savings where they would be safe, and earn a fair return—we extend to you a cordial invitation to become a depositor of this bank. . .

Accounts may be started with any amount from $1.00 up, and interest is paid at the rate of 4 per cent compounded twice a year. . . . . . .

YOU CAN BANK BY MAIL
Write for Particulars

The SAVINGS
DEPOSIT BANK COMPANY
Medina, Ohio

ASSETS OVER HALF MILLION DOLLARS
A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

Strong colonies of Italian bees in eight-frame Dovetailed hive (including section-case).......... $8 50
In Chaff hives 9 50
Bees in any style of hive desired.
Italian queens, tested,........ $1 25
Italian queens, untested,........ 1 00
The best veils 40

Saesroom--105 Park Place. Apiaries, Glen Cove, L. I.

Now's the Time to Order

Your bee-hives, sections, shipping-cases, berry-boxes, and crates for the coming season. By sending us a list of goods wanted we can save you money. :: ::

Sheboygan : Fruit-box : Company
Sheboygan, Wisconsin

Perfect Goods!

Low Prices!

A Customer Once, A Customer Always.

We manufacture **BEE-SUPPLIES** of all kinds. Been at it over 20 years. It is always best to buy of the makers. New illustrated catalog free. :: :: ::

For nearly 14 years we have published **The American Bee-Keeper** (monthly, 50c a year). The best magazine for beginners; edited by one of the most experienced bee-keepers in America. Sample copy free.

ADDRESS

The W. T. Falconer Mfg. Company,
Jamestown, N. Y.

W. M. Gerrish, Epping, N. H., carries a full line of our goods at catalog prices. Order of him and save freight.

PAGE & LYON,
NEW LONDON, WISCONSIN.

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Send for Our FREE New Illustrated Catalog and Price List.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

Hoosier-Italian Queens---By Return Mail.

Untested Queen	$ 75
Select Untested Queen	1 00
Tested Queen	1 00
Select Tested Queen	2 00
Select Breeding Queen	5 00
Best Imported Queen	5 00
Fair Imported Queen	3 00

Brazil, South America, June 6, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I wish to give you some news about your shipment of bees that stood the journey well and arrived on May 13. The two-frame nuclei with fancy breeding queen is now increased to a full colony, and occupies ten Langstroth frames. The queen seems to deserve her name, and is very beautiful and prolific. Very truly yours, D. AMORA VAN EMELEN.

Abilene, Kan., July 31, 1905.

WALTER S. POUDER, Indianapolis, Ind.

Dear Sir:—I would like another Select Untested queen, such as you sent my friend, J. L. Worley, and myself last year. They are the handsomest queens and bees that I have ever seen, wintered well, and are hustlers. Truly yours, DR. FRANK PARKER.

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICES
Special Notices
By Our Business Manager

EXTRA-LONG BEE-GLOVES.

Having made arrangements for our supply of gloves from a factory making a specialty of their manufacture, we save enough in the cost to enable us to offer them either with or without fingers at 35 cts. a pair; by mail, 42 cts.

HONEY.

We have a good demand for choice comb honey as well as good clover extracted. We should like to hear from those who have either ready for shipment. State quantity, how put up, and the price you ask; also whether you can use supplies in exchange.

PETITION IN BANKRUPTCY.

H. H. Hyde, of San Antonio, doing business under the name of the Graham-Hyde Bee Co., filed a voluntary petition in bankruptcy on July 2d, of this year, with total assets of about $5000 and total liabilities of nearly $9000.

We have on hand 35 Falcon chaff hives, two-story, in the flat; put up in crates of five each. These have two ⅞-inch division-boards and two chaff-cushion division-boards. No frames or supers or other fixtures are packed with these hives. Price as above, to close out, $1.50 each. If the entire lot is ordered in September, $1.25 each. The regular price of this hive, without fixtures, was $2.00.

"THE HONEY-MONEY STORIES."

The foregoing is the title of a new 60-page pamphlet published by G. W. York & Co., Chicago. It is well printed and beautifully illustrated. The subject-matter is prepared in popular style, calculated to interest and attract the attention of the ordinary consumer of honey. The stories are interesting, and from every point of view are calculated to tickle the palate of the person who has never eaten honey, and to stimulate the desire for more on the part of those who are lovers of the sweet. The price of the pamphlet is 25 cts. Bee-keepers can probably procure them of the publishers. Mr. York is to be congratulated on getting out so interesting and attractive a book.

WIDE-MOUTH MASON FRUIT-JARS.

The carload price on Mason fruit-jars is over a dollar a gross higher this year than last. We carried over quite a large stock, which we will sell at the same prices as heretofore—namely:

Pint	doz., 52 cts.;	6 doz., $3.00;	12 doz., $5.75
Quart........	" 55 cts.;	" 3.10;	" 6.00
Half-gallon..	" 75 cts.;	" 4.10;	" 8.00

Triumph wrench, 15 cts. each.

Ball's waxed rings, 5 cts. per dozen. These are far superior to rubber rings for fruit-jars, and cheaper.

In addition to the regular style of Mason jars we have a stock of wide-mouth special Masons, with 3-inch opening. These are especially desirable for canning large fruit whole, or for packing chunk comb honey. These jars are of extra quality, and cost $1.65 per gross more than the regular pattern. As we do not list them we offer our present stock at an advance of 10 cts. per dozen, $1.20 per gross, on any size. They have zinc caps and rubber rings. We have no wax rings of the right size to fit these jars. They are a bargain at this price.

BEESWAX AND COMB FOUNDATION.

To compensate for the large early-order cash discount we propose to increase the trade price of wax; and until further notice we will pay 26 cts. cash or 30 cts. in trade for average wax delivered here or at our branches. When you take trade at 30 cts. a pound you will not be entitled to the early-order discount on the supplies.

The price of comb foundation was reduced Aug. 1 two cents a pound, and the revised price stands as follows:

GRADE.	Size, and sheets per pound.		In lots of 1 lb.	5	10	25	50
Medium Brood	7¾x16⅞	7 to 8	55	53	51	49	48
Light Brood.....	7¾x16⅞	9 to 10	57	55	53	51	50
Thin Super......	3⅞x15½	28	62	60	58	56	55
Extra Thin......	3⅞x15½	32	65	63	61	59	58

The early-order cash discount applies to the reduced price of foundation, making a total net reduction of 7 to 8 cts. a pound for September orders. We recommend that shipment of foundation be avoided in extreme cold weather, and to that end it would be well to get in your supply in the fall. Use your leisure time in winter to nail and paint your hives, put up sections, and prepare other articles ready for the spring rush.

CASH DISCOUNT FOR EARLY ORDERS.

We can not remember a year when we were not crowded with orders through the spring months, and somewhat behind, some years more than others. In order to divert some of this trade to the fall and winter months we have offered inducements in the way of an early-order cash discount. This year we will be more liberal than ever before in the amount of discount allowed. For some months the price of some of the materials used has been a little lower, and we have stocked up heavily, and propose giving you the advantage of the saving in price. The abundant farm crops throughout the country are stimulating trade in almost all lines, and prices are already stiffening. The discounts which we propose to offer for early cash orders are as follows:

For cash orders	before	Oct. 1............	10 per cent.
"	"	Nov. 1...........	9 "
"	"	Dec. 1...........	8 "
"	"	Jan. 1............	7 "
"	"	Feb. 1...........	6 "
"	"	March 1..........	4 "
"	"	April 1..........	2 "

You will notice that, after January, the discount drops 2 per cent a month; and if we find that advancing prices of materials do not warrant the larger discount we reserve the right to reduce the amount of discount at any time. Your safest plan is, therefore, to order at once.

This discount is only for cash before the dates named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about 10 per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escape, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog.

Special Notices by A. I. Root.

EXPERIMENTS WITH WINTER WHEAT.

Every farmer in Ohio who grows wheat, even if not more than an acre, should certainly send to the Ohio Experiment Station, Wooster, for Bulletin No. 165, and study it carefully from beginning to end. I have repeatedly heard farmers discuss the very points our station has been working hard to settle, and no individual farmer can think of making such exhaustive and complete tests as have been made by the station, with the money belonging to our great State of Ohio. Your own money has paid for these bulletins, and you should by all means reap the benefit of them; and if you can possibly do it you had better visit the station and look over the fields where the tests are made. If you live in some other State, by all means get in touch with your own experiment station.

THE SPANISH-ENGLISH TESTAMENT.

When I returned from Cuba I had so much enjoyed learning Spanish by means of the above Testament that I ordered forty copies of the American Bible Society, expecting, with the write-up, they would soon be sold. I was a good deal disappointed, however, to find we had only one or two applications, and I began to think my forty copies would last a long time. But for some reason or other, I can not tell why, the call for them began to increase, and a few days ago the book clerk gave me the encouraging news that the last copy had been sold. By the time this reaches you we shall have a new stock, which we will sell at 25 cts. each; postage 10 cts. extra. If there are any Spanish-speaking people in your vicinity, and you have a love for learning other languages as well as for the word of God, you will find this Testament a good investment. Remember, it is Spanish in one column and English in the other, each verse directly opposite the corresponding one in the other language. The book will be equally valuable for all Spanish-speaking readers who wish to learn English.

PROMPTNESS IN SHIPPING QUEEN-BEES, ETC.

There has been more than usual complaint during the present season of queens not being shipped promptly. From letters received from all of the prominent queen-breeders, as well as those advertising this year for the first time, it appears that orders have been delayed more than usual, and in many cases breeders have had to refuse orders offered them. The weather has not only been unfavorable but the orders have been larger than ever before Our own orders have suffered for the above reasons and because our regular queen-clerk has been necessarily absent on account of sickness. We are caught up now, and expect to fill orders promptly the rest of the season. One party complains that he lost his honey crop because he took the queens out of his hives on the strength of the promise that new ones would be sent May 20. They did not reach him until June 12, and his colonies were queenless all that time. Now, I want to say to the friends that I would under no circumstances remove queens from their hives before the new ones are actually received; and Ernest suggests that we are introducing lots of queens just now by leaving the old queen in the hive until the new one is ready to be liberated. In this way egg-laying keeps going on right along almost without a stop. There are so many unforeseen circumstances to prevent a prompt shipment of queens that no one should complain of reasonable delay. Very likely we have queen-breeders who fill orders promptly; but during the fore part of the season, when the weather is apt to be cold and wet, it is a pretty hard matter to be *always* prompt. Of course, it is a splendid thing to fill every order the day it is received. It is the biggest kind of advertisement to one's business. But I would not be too hard on somebody who is usually prompt, if he happens to be a little behind.

Convention Notices.

The Fulton and Montgomery Counties (New York) Bee-keepers' Society will hold their next meeting on Wednesday, Sept. 20, 1905, at the Central Hotel, Amsterdam, N. Y. The annual election of officers will take place at this meeting, and also two delegaees will be appointed to attend the meeting of the State Association at some time during the coming winter, and also any other business which may come up at this meeting. All are invited to come and bring their bee-keeping friends. T. I. DUGDALE, Sec.

West Galway, N. Y.

THE NATIONAL CONVENTION TO MEET IN SAN ANTONIO, OCTOBER 28 TO NOVEMBER 1.

The International Fair holds its annual exhibition in San Antonio, Texas, Oct. 28 to Nov. 1. When this fair is in progress there are very low rates in force on the railroads out for 600 or 700 miles. Then there are harvest excursions from the North on the second and fourth Tuesdays of the month. The fourth Tuesday in October comes on the 24th. Considering these facts, it has been decided to select Saturday, Oct. 28, as bee-keepers' day at the fair. This will give ample time for members from the North to reach the city by starting the 24th. The regular sessions of the convention will begin Monday, Oct. 30, *and continue three days.*

The Fair Association has designated Saturday, Oct. 28, as bee-keepers' day, and will so advertise it, and especial pains will be taken to have on exhibition hives, honey, wax, bees, and other apiarian products. At this fair will be on exhibition all of the agricultural and other products of the South and Mexico, and a visit to it will really be worth all the trip will cost, to give one an idea of the South and her products.

Then the Texas members propose to give a genuine Mexican supper, which will be free to all outside members. There will be Mexican band and toast-making—in short, it might be called a banquet. On Sunday the members can attend church or go on a trolley-ride around the city. Side trips to Uvalde and other places are planned for all who wish to see the country after the convention is over, bee-keepers at the various honey-centers having promised to take the bee-keepers around free of charge. Texas is one of the greatest, if not *the* greatest, of honey-producing States in the Union, and bee-keepers will now have an opportunity to see her wonderful resources, enjoy the hospitalities of her people, and profit by meeting in convention, all at very small cost.

The headquarters of the National Association will be at the Bexar Hotel (pronounced Baer, long sound of a), corner of Houston and Jefferson Sts., and rates are only $1.00 a day, and up. The convention will be held at Elks' Hall, 125 W. Commerce St., only two blocks from the Bexar Hotel.

Every thing is now arranged except the program, and I wish that every one would write and make suggestions in regard to topics and men to discuss them. If you have no special topic that you wish put into the program, you must surely have some question that you would like brought before the convention. Pour in the suggestions and queries, and let me get up one of the best programs that we have ever had.

W. Z. HUTCHINSON, Secretary.

PROGRAM OF BEE-KEEPERS' FIELD MEETING TO BE HELD AT JENKINTOWN, PA., THURSDAY, SEPT. 7, 1905.

MORNING SESSION.

9:30.—Dr. Henry Townsend presiding; short business session of the Philadelphia Bee-keepers' Association, followed by an address by the president.

10:00.—Address, "Relative Merits of the Queens of the World," by an expert from Columbia College. Practical demonstration, finding a queen without smoke, by a veteran, Henry M. Twining, Logan, Pa. Practical demonstration of the merits of the Bigelow Observation hive, Dr. E. F. Bigelow, Stamford, Conn.

11:00.—Fellowship of Associations, Pres. H. A. Surface, Harrisburg, Pa. Address, "Queen-breeding in Florida," J. B. Case, Port Orange, Fla. Demonstration of the gentleness of Caucasian bees, Dr. Phillips, Dept. of Agriculture, Washington. Champion queen-hunting contest by experts; judges, Pres. H. A. Surface, Pres. Wm. W. Case, L. W. Boyden.

12:00.—Lunch.

AFTERNOON SESSION.

1:00.—Wm. W. Case presiding; short business session of the New Jersey Bee-keepers' Association, followed by an address by the president. Awarding of prizes for the best samples of comb and extracted honey. Address, "Increase and Nuptial Flight," E. L. Pratt, Swarthmore, Pa. Question-box opened, answers by experts. Address, "House Apiaries," L. C. Root, Stamford, Conn.

2:00.—"How Bees are Handled and Kept in England," followed by a practical demonstration of the handling of frames, J. M. Hooker, England. Address, "Bees in Hungary" (through an interpreter), Rev. Julius Hanko. Demonstration under a powerful microscope of the workings of the parts of a live bee, by a scientist, Dr. E. F. Phillips. Address, "The Beginner," C. G. Schultz, Mont Clair, N. J. Address, "Bee-keeping in the Northwest," D. L. Woods, Muncy, Pa. Inspection of the apiary.

3:00.—Hon. H. A. Surface presiding; short session of the Pennsylvania State Bee-keepers' Association, followed by an address by the president. Demonstration of the Danzenbaker hive, F. Danzenbaker, Miami, Fla. Practical demonstration of hiving an artificial swarm, Harold Hornor. Practical demonstration of the sting of the bee.

4:00.—Usefulness of honey from medical standpoint, M. K. Neiffer, M. D., (stomach specialist). Practical demonstration of the color and habits of different races of bees. Address, "Bee-keeping in New Jersey," J. H. M. Cook, New York. Address, "Value of Experimental State Work," Richard D. Barclay (formerly of State College).

5:30.—Adjournment and lunch.

Committee on arrangements.—Hon. H. A. Surface, Dr. E. F. Phillips, Wm. A. Selser.

Secure your tickets at stand for lunch; dinner 15 cents, supper 12 cents (actual cost of provisions). A plate of ice cream furnished with each ticket—compliments of The Root Company.

Orders on the local ticket agents for reduced rates to the Jenkintown bee-meeting can be secured free, on application to Wm. A. Selser, Jenkintown, Pa., Prof. H. A. Surface, Harrisburg, and E. F. Phillips, Washington, D. C.

Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight.

The Bee & Honey Company, Beeville, Bee Co., Texas.

Prices of Queens	1	6	12
Untested	$ .75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO, TEX.

Carniolans a Specialty ! !

ALSO breeders of Golden and Leather Italians. One untested queen, 75c.; six for $3.90; twelve for $6.00. Tested, $1.25. Best breeder, $2.50. Best imported, $4.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free. :-: :-: :-:

Carniolans.—We have bred this race of bees for 20 years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

F. A. Lockhart & Co., - Lake George, N. Y.

NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

August and September Prices

Untested, each.....$ .65; ½ doz., $3.75; doz., $7.00
Warranted, each.... .75; " 4.25; " 8.00
Tested, each........ 1.25; Select tested, each 1.50

A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

W. W. Cary & Son, Lyonsville, Mass.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be a very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, 60c each; six for $3.30, 12 for $6.00. Free circular.

L. H. Robey, Worthington, W.Va.

The Demand for

MOORE'S - STRAIN - OF - ITALIANS

becomes greater each year; the following report shows the reason why:

EXCEL IN STORING CAPACITY

B. S. Taylor, a large honey-producer of Perris, Cal., who sent me an order for 75 queens at one time, says: "I have a large apiary mostly of your stock, and I have never in my thirty years' experience, seen so quiet and gentle bees to handle, and in storing capacity they excel any thing I have ever had." ::: ::: :::

I am now filling orders by return mail and shall probably be able to do so until the close of the season.

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.00 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free :: ::

J. P. MOORE, MORGAN, PENDLETON CO., KY.

GEORGIA QUEENS.

BROKEN UP AT LAST

The severe dearth of honey and pollen has been broken up by a fine flow of honey, and we are again rearing queens from our Superior Golden and Leather Italians; also, Gray Carniolan stock. :: ::

Untested, 75c; six for $4.00; twelve for $7.00.
Tested, $1.00; Select, $2.00; Best, $5.00.
Send for circular. **T. S. HALL, Jasper, Pickens Co., Ga.**

RED-CLOVER AND ITALIAN

QUEENS

ROOT'S STRAIN, FOR SALE.
Untested, $1; Select Tested $1.50.

Charles A. Myers, Leipsic, Ohio.

WE CARRY A FULL LINE OF

SHIPPING-CASES

AT SYRACUSE, N. Y.

In ordering make order for 10 or 50 lots.

THE A. I. ROOT COMPANY

SYRACUSE - - - - NEW YORK

MONEY = IN = BEES

FOR YOU—INVESTIGATE—CATALOG FREE

New England Bee-keepers will find a complete stock of Root's Goods at Root's Prices in . . .

BOSTON

Best shipping center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me. . .

F. H. Farmer, Boston, Mass.

Up First Flight, 182 Friend St.

DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. Delay means loss.

Root's Goods

AT

Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. CATALOG FREE.

PROTHERO & ARNOLD,

DUBOIS, Clearfield Co., **PENNA.**

Bee-keepers' Field Meeting

JENKINTOWN, PA., THURSDAY, SEPT. 7, 1905

The Apiary.

This apiary is located just back of W. A. Selser's residence, and is composed of different races of bees from all parts of the world, as well as hives of the various designs, and bees in all stages of development, baby nuclei, queen-rearing, observatory hives, queens, etc.

The Meeting.

The Hon. H. A. Surface, Pres. of Penn. State Association, was desirious of getting a large number of practical bee-keepers together, and so many calls came from all over the East to the Root Company to visit their Jenkintown Apiary (since the last local meeting), that they united in the above way for this meeting, and appreciate the hearty way in which the Bee Associations have co-operated.

The Program.

The program will be arranged to start at 9:30 A. M., the President of the various Associations alternately presiding, and continue until 5:00 P. M.

The Entertainment.

Arrangements have been made to have lunch served on the grounds at noon and evening for 15 cents, just the actual cost of provisions.

The Place.

Jenkintown is on the line of the P. & R. R. R. Parties coming on other roads can come to Philadelphia and take the Willow Grove trolley line on 8th and 13th Streets, and get out at Jenkintown Toll-gate. Fare 10 cents.

Special Rates.

Special commutation rates have been made over the New Jersey Central and Bound Brook R. R., the New York train leaving at 7:00 A. M., stopping at Plainfield and Bound Brook. The fare from New York and return is $2.98.

Honey Exhibit.

Bee-keepers are kindly asked to bring along a sample of their 1905 crop of either their comb or extracted honey for the exhibition table. A prize of a three-frame nucleus, with one of our golden Italian queens, will be given to the one having the best sample of comb honey, and best sample, in the most attractive package, of extracted honey. Judges to be decided on by the members present at the meeting. Those not being able to be present, who would care to send samples, can do so.

For further Information and Particulars write

L. W. Boyden, Box 1037, 44 Vesey St., New York City. Phone, 543 Cortlandt.
Wm. A. Selser, Jenkintown, Pa. Phone, 181 W-Ogontz.
Root Co., 10 Vine St., Philadelphia. Phones, Bell, 4928 Market; Keystone, Main 1671.

QUEENS

We have secured the services of one of the best Queen Specialists in the U. S. Over 20 years' experience in raising queens. Our yard is stocked with select breeders from the very best yard in America, and can send queens by return mail.

Prices to Sept. 1, 1905

Untested Queens	$ .75
Select Untested Queens	1.00
Tested Queens	1.50
Select Tested Queens	2.50

GRIGGS BROTHERS
523 Monroe St. TOLEDO, OHIO

Dadant's
Foundation

It excels. We guarantee satisfaction. . . . .

Bee-supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII SEPTEMBER 15, 1905 Number 18

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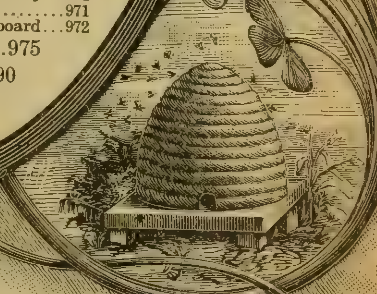


THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER

Root's Bee-keepers' Supplies at Convenient Distributing Points.

Well-known Dealers. The dealers, whose names follow, are well known to bee-keepers. They have been, for the most part, long established in the bee-supply trade, and have a knowledge of the business most valuable indeed to the bee-keeping fraternity. Their advice may be had on any question of supplies, etc., for the asking.

The Large Stocks. Nowhere else is it possible to find such well-assorted stocks of goods for bee-keepers as are carried by dealers in Root's Goods. No matter whether you require a little five-cent article or a carload of goods, these dealers can serve you promptly. Stocks are frequently carried amounting to $5000 and upward.

Shipping Points. You will observe that these dealers have excellent shipping facilities—guaranteeing you quick delivery and low freight rates.

Medina Prices. The prices, terms, discounts, etc., are identical with the home office at Medina (with rare exceptions). Full particulars may be had before ordering, if desired, by writing the dealer nearest you. You can, however, use our Medina catalog and terms, and, if any variation, your dealer will advise you, if requested, before shipping.

Other Dealers. Besides the following list, there are many others who handle some of Root's Goods. The following is by no means complete for hundreds of dealers come to us for many of the goods of which we are the exclusive manufacturers. *Insist on getting Root's Goods.*

Local Dealers. In addition to the following list who carry large stocks, and furnish at both *wholesale* and *retail*, we have in every State a large number of dealers who handle our goods exclusively. As there are over 500 of these dealers, space will not permit giving their names at this time; but information will be given by us, on request, to any bee-keeper regarding the dealer nearest him handling Root's Goods.

Colorado--Fruita Fruit & Produce Association, Fruita, Colo.

District of Columbia--The A. I. Root Company, Washington, D. C.

Georgia--Howkins & Rush, 124 Liberty St., Savannah, Ga.

Indiana--Walter S. Pouder, Indianapolis, Ind. Vickery Bros., Evansville, Ind.

Iowa--Joseph Nysewander, Des Moines, Iowa.

Illinois--The A. I. Root Company, 144 E. Erie St., Chicago, Ill.

Kansas--Carl F. Buck, Augusta, Butler Co., Kan.

Mississippi--George A. Hummer, Brazelia, Miss.

Massachusetts--F. H. Farmer, 182 Friend St., Boston, Mass. W. W. Cary & Son, Lyonsville, Mass.

Maine--The A. I. Root Company, Mechanic Falls, Me.

Maryland--Rawlings Implement Co., Baltimore, Md.

Michigan--M. H. Hunt & Son, Bell Branch, Mich. George E. Hilton, Fremont, Mich.

Minnesota--The A. I. Root Company, 1024 Mississippi St., St. Paul, Minn.

Missouri--John Nebel & Son, High Hill, Mo. Springfield Seed Co., Springfield, Mo. Blanke & Hauk, St. Louis, Mo.

New Mexico--Edward Scoggin, Carlsbad, New Mex.

New York--The A. I. Root Company, Syracuse, N. Y. The A. I. Root Company, 44 Vesey St., New York City, N. Y.

Ohio--McAdams Seed Company, Columbus Grove, O. Griggs Bros., 521 Monroe St., Toledo, O. C. H. W. Weber, 2146 Central Ave., Cincinnati, O.

Pennsylvania--Prothero & Arnold, Dubois, Pa. The A. I. Root Company, 10 Vine St., Philadelphia, Pa.

Texas--Texas Seed & Floral Co., Dallas, Tex. Udo Toepperwein San Antonio, Tex.

The following buy our goods in carload lots but supplement them with local-made goods.

Alabama--J. M. Jenkins, Wetumpka, Ala.

California--Calif. Nat'l Honey-producers' Ass'n, Los Angeles; Madary Planing Mill, Fresno, Cal.

Colorado--The L. A. Watkins Mdse. Co., Denver, Col.

Oregon--Portland Seed Co., Portland, Ore.

Texas--D. M. Edwards, Uvalde, Tex.

The A. I. Root Company, : Medina, Ohio.

C. H. W. Weber,

Headquarters for

Bee-Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Complete stock for 1906 now on hand. Freight rates from Cincinnati are the lowest, especially for the South, as all freight now goes through Cincinnati. :: :: ::

10% DISCOUNT

For Cash Orders Received in

SEPTEMBER.

This applies to all goods with exception of shipping-cases and other honey packages for current use. :: :: ::

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Denver.—A little new comb honey is commencing to come in now, and we are selling No. 1 white at $3.00 per case of 24 sections; No. 2, $2.75. Extracted, 6¾@7½. Beeswax, 24.

Colorado Honey-producers' Ass'n,
Sept. 8. 1440 Market St., Denver, Colo.

Columbus.—We quote as follows: Fancy white, 15; No. 1, 13. Comb honey wanted.

Sept. 9. Evans & Turner Co., Columbus, O.

Schenectady.—Receipts of both comb and extracted honey have been quite liberal for the past ten days, and selling as well as could be expected at this early date. We quote fancy white comb 14@15; No. 1, 13@14; No. 2, 12@13; buckwheat, 11@12. Extracted white, 7@8; dark, 6@6½.

Chas. McCulloch,
Sept. 8. Schenectady, N. Y.

Kansas City.—Fancy white comb honey is in good demand at $3.00 per case of 24 sections; in fact, the demand exceeds the supply. Extracted is selling slowly at 6½ for fancy white. Amber and other grades selling from 5c up. Beeswax, 28. We look for the market to remain firm.

C. C. Clemons & Co.,
Sept. 8. Kansas City, Mo.

St. Louis.—The situation in comb honey is unchanged—as dull as ever, with considerable old stock on hand. Extracted honey rules firm and higher, and is quotable as follows: Amber, in barrels, 5@5¼—extra fine, 5½; in cans, 5½@6 for Southern, 6½@6¾ for new California. All old stock is cleaned out. Beeswax, 28½.

R. Hartmann & Co.,
Sept. 7. 14 So. Second St., St. Louis, Mo.

Cincinnati.—It appears by this time that comb honey will not be so plentiful. In some parts of the West the crop has been more or less a failure. Prices so far have not changed much yet. We quote same as follows: Fancy white comb, 13@15. Extracted seems more plentiful, and we quote same in barrels, light amber, 5¼@5½; in cans, ½c more; white clover, 7@8. Beeswax, 26.

C. H. W. Weber,
Sept. 6. 2146-8 Central Ave., Cincinnati, O.

Chicago.—The market in comb honey is not large, yet all really desirable lots of white are being taken at 13@14—only fancy at the extreme range is wanted. Extracted is in fair demand at 6@7 for white; amber, 5½@6. Beeswax is selling upon arrival at 28.

R. A. Burnett & Co.,
Sept. 6. 199 South Water St., Chicago, Ill.

Detroit.—The price and market for comb honey have not changed practically since last month. There is a tendency to hold off in buying for lower prices, while offers are plentiful. We quote fancy and A No. 1 comb, 12½@13½; no dark honey in, with some inquiry for it. Extracted white clover, 6@6½. Beeswax, 26@28.

Sept. 6. M. H. Hunt & Son, Bell Branch, Mich.

Albany.—Honey demand is improving now, and think prices are best of season. We quote fancy white 15@16; A No. 1, 15; No. 1, 14; No. 2, 13; buckwheat, 12@13. Extracted white, 7@7½; amber, 6½@7; buckwheat, 6@6½. We look for a good season on honey. The crop in this vicinity is light. Beeswax, 28@32.

Mac Dougal & Co.,
July 29. 375 Broadway, Albany, N. Y.

Milwaukee.—Since our last report there has been a marked improvement in the condition of this market for honey—more inquiry and more sales—and there is encouragement that the overstock of the old crop will be wanted, especially of the extracted. The receipts of new meet very fair demand, and sales have been made of old and new of all grades. We now quote new 1-lb. sections of fancy 13½@14; old crop, 11@12. Extracted, in barrels, kegs, and cans, white, 7@7½; amber, 6@6½. Beeswax, 28@30.

A. V. Bishop & Co.,
Aug. 29. 119 Buffalo St., Milwaukee, Wis.

Atlanta.—The demand for comb honey is very good, but very little is being offered. The demand for extracted is dull with the market full. We quote fancy white comb, 12@13; A No. 1, 11@12; No. 1, 10@11, There are no sales of extracted, hence we make no quotations. Beeswax, 28.

Judson Heard & Co.,
Sept. 6. 110 So. Forsyth St., Atlanta, Ga.

New York.—New-crop comb honey is now arriving in a small way, and fancy stock finds a ready sale at 14@15; No. 1, 12@13; amber, 11; no buckwheat on the market as yet. Extracted is in good demand, and we quote California at 6@7½, according to quality; Southern, 55@65 per gallon; white clover, 6½@7. Beeswax, steady at 29.

Hildreth & Segelken,
Sept. 7. 265-7 Greenwich St., New York.

Toledo.—The market on comb honey at this writing has slightly improved, but is not very rushing as yet on account of the heavy receipts of fruit, which take up the attention of the consumers at this season of the year. We have had a better demand the past week or ten days than we have had any time this season, but owing to the large amount of honey being pushed on to the market it has a tendency to lower the price. We are securing for fancy white clover, in a retail way, 14@15; No. 1, 13@14; no demand for amber. Extracted white clover, in barrels, 6@6¼; in cans, 7½@8; amber, in barrels, 5@5¼; in cans, 5½@6. Beeswax, 26@28.

Sept. 6. Griggs Brothers, Toledo, Ohio.

WANTED

FANCY COMB HONEY IN NO-DRIP SHIPPING CASES, ALSO EXTRACTED HONEY. IF YOU HAVE ANY TO OFFER, QUOTE US YOUR ROCK BOTTOM CASH PRICE DELIVERED HERE, AND MAIL US A SMALL SAMPLE OF THE EXTRACTED HONEY. WE BUY EVERY TIME THE PRICE IS RIGHT, AND REMIT PROMPTLY.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET, CINCINNATI, OHIO.

Cincinnati.—There is little to report since our quotation two weeks ago. The supply of both comb and extracted honey is fair, and the demand is good. We offer extracted honey as follows: Amber, in barrels and cans, 5¾ and 6½, respectively; white clover, 7@8½. Fancy white comb, 12@15. Beeswax is wanted at 29.

The Fred W. Muth Co.,
Sept. 7. 51 Walnut St., Cincinnati, Ohio.

Boston.—Our honey market is still in an unsettled condition. Very little new honey has come in as yet, and the demand will hardly open until colder weather. A large stock of old honey carried over from last season will have a tendency to make our market lower than it otherwise would be. Generally speaking, prices range as follows: Fancy, 15@16; A No. 1, 15; No. 1, 14. There is practically no No. 2 on the market.

Blake, Scott & Lee,
Sept. 7. 31-33 Commercial St., Boston, Mass.

Philadelphia.—Some honey arriving, with prospects of a good crop all through the East; but no call for comb honey, so that prices are not as yet established. Extracted honey is arriving freely, and is selling as follows: Fancy white, 7@8; amber, 6@7. Beeswax, 27. We are producers of honey, and do not handle on commission.

Wm. A. Selser,
Sept. 9. 10 Vine St., Philadelphia, Pa.

For Sale.—Extracted honey at 6 to 8½ cts.; sample, 10 cts. I. J. Stringham, 105 Park Place, New York.

For Sale.—2000 lbs. choice buckwheat honey in new 60-lb. cans, at 5c. Clover honey all sold.
G. A. Bleech, Jerome, Mich.

For Sale.—We have yet on hand 1000 lbs. of extracted honey, of this season's crop, white clover and linn. What am I bid for the lot in 60-lb. cans, f. o. b. here?
J. B. Murray, Ada, Ohio.

For Sale.—5000 lbs. white-clover extracted honey in new 60-lb. cans, fine body and color, at 7 cts., f. o. b. at Albany and New York; 3000 lbs. buckwheat at 6 cts., ditto. J. D. Bixby, R. F. D. 2, Altamont, N. Y.

For Sale.—6000 lbs. A No. 1 white-clover extracted honey, in new 60-lb. cans, at 8 cts., f. o. b. here. This honey was left on the hive two weeks after the season closed, and then only the full, all-sealed, upper stories were extracted in this lot. All the partly filled upper stories were extracted by themselves and sold at a less price. Speak quick, as we are two-thirds sold out. Sample free. Our amber extracted will be ready for the market the last of the month.
E. D. Townsend, Remus, Mich.

For Sale.—Choice extracted white-clover honey. new crop, in new 60-lb. cans. Sample, 5c.
G. A. Bleech, Jerome, Mich.

For Sale.—New clover honey in 60-lb. cans.
C. J. Baldridge, Kendaia, Seneca Co., N. Y.

For Sale.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
Hildreth & Segelken, 82 Murray St., N. Y. City.

For Sale.—1000 lbs. of extracted white-clover honey in 60-lb. cans, two in a box, f. o. b. Will send samples for 10 cts. W. S. Wright,
365 W. Van Buren St., Battle Creek, Mich.

For Sale.—7000 lbs. new clover honey in 60-lb. cans; sample free. Jas. McNeill, Hudson, N. Y.

For Sale.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. Hershiser, 301 Huntington Av., Buffalo, N. Y.

For Sale.—12,000 lbs. new clover honey, comb and extracted; latter in five-gallon cans, one and five pound pails, and glass jars. State your wants, and we will quote a price that is right.
Quirin-the-Queen-Breeder, Bellevue, Ohio.

For Sale.—Choice light amber honey in 60-lb. cans; from fall flowers and second-growth clover. This honey is ripened on the hive and is a superior article. Sample, 5 cts. price; 6½ cts., f. o. b. cars.
F. B. Cavanagh, McBain, Mich.

For Sale.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat.
G. H. Adams, Mill St., Bellevue, Schenectady, N. Y.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up.
Chas. Koeppen, Fredericksburg, Va.

Wanted.—White-clover comb and extracted honey.
B. Walker, Clyde, Ill.

Wanted.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
Evans & Turner, Columbus, Ohio.

Wanted.—Honey in any quantity. State price, quantity, and quality. Address Judson Heard,
110 South Forsyth St., Atlanta, Ga.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

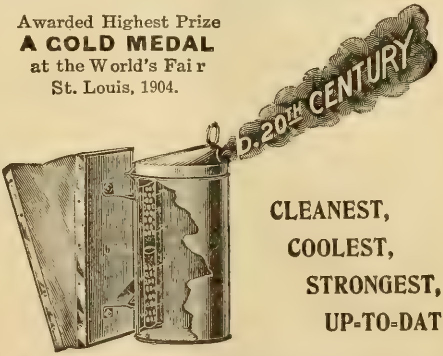
Wanted.—We are in the market for buckwheat honey, both comb and extracted. When writing be sure to tell how it is put up, mentioning the grade; if comb, No. 1 or fancy; and send sample if it is extracted. We do not want it mixed with other flavors.
The A. I. Root Co., Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St. New York.

Wanted.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
Thos. C. Stanley & Son,
Manzanola, Colo., and Fairfield, Ill.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



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STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

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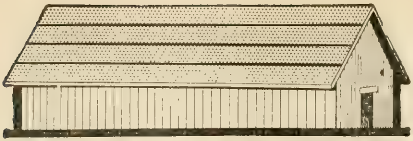

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Send for sample and name of nearest dealer. Paroid Roofing is used by U. S. Government and leading farmers everywhere. Extra tough and durable. Proof against water, sparks, cinders, heat, cold and gases. Light slate colored—no tar—does not taint water. Write today for samples and save money.

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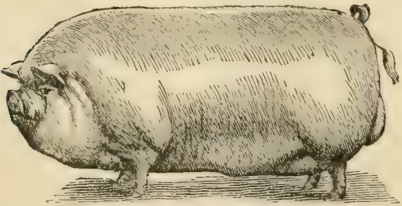
Originators of free roofing kit in every roll.



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will give you a new wagon and a lifetime's service out of your old running gears. They are the modern great service wheel. **Made to fit any wagon,** adapted to every duty. Straight or staggered oval steel spokes, broad tired, any height desired. You will be through with repairs and save money, fields and labor of horse and man. Write at once for our catalogue. It's free for the asking.

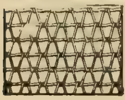
ELECTRIC WHEEL CO.,
BOX 95 **Quincy, Illinois.**

EGGS FROM BONE

Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls.

MANN'S LATEST MODEL BONE CUTTER

10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'lg free.
F. W. MANN CO., Box 37, **Milford, Mass.**



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COILED SPRING FENCE CO.,
Box 101 **Winchester, Indiana.**

4 per cent

If You've Money Lying Idle

or invested in a way that is not satisfactory, or that does not yield you more than 4 p. c.—or, if you feel that you would like to save a portion of your earnings from time to time and deposit such savings where they would be safe, and earn a fair return—we extend to you a cordial invitation to become a depositor of this bank. . .

Accounts may be started with any amount from $1.00 up, and interest is paid at the rate of 4 per cent compounded twice a year. . . . . . .

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DEPOSIT BANK COMPANY
Medina, Ohio

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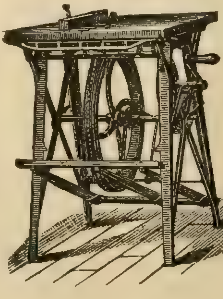
Pickett Publishing Co., - Louisville, Kentucky



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Machinery.

This cut represents our combined circular saw, which is made for beekeeper's use in the construction of their hives, sections, boxes, etc., etc.

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W. F. & Jno. Barnes Co.,
545 Ruby St.,
Rockford. : Illinois.

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.

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Stray Straws

By Dr. C. C. Miller.

I WANT TO ASK my friends to waste no votes on me for director of National, as, under no circumstances, am I to be considered a candidate for re-election. [But a lot of us will vote for you just the same. There are a few old officers that should be retained, and you are one of them.—ED.]

NO REPLY is given to J. W. Stoutzenberg, p. 919, as to whether he should transfer now or next year. Wouldn't he do better to wait till next spring? or, still better, until three weeks after the bees have swarmed? There is probably three times as much transferring done in England as here—may be ten times as much; and nowadays the *British Bee Journal* advises to let the bees swarm first.

BROTHER McCAIN has brought out a good idea, p. 919. When using greasy waste I've always been careful *not* to get my fingers daubed with it—don't like the smell. Then I'd smear my fingers with butter to get off the glue—must try the plan of going to the hive with "butter-fingers" prepared in advance. [At this time of year propolis is apt to be abundant and very sticky. It is a good suggestion to grease the fingers before commencing work among the bees.—ED.]

MR. DOOLITTLE, page 917, says nothing about the crock-and-plate feeder for those who have no regular feeders. I wonder if the milkpan-and-grass plan is really better. At any rate, that *green*-grass idea is good. [We are in the habit of recommending to those who have no feeder a common tin pan. Pour in water and syrup, equal proportions, and stir it till it is dissolved. Over this is to be placed, directly in contact with the syrup, a piece of wet cheese-cloth. This will float; and when the syrup is taken up, the cloth will remain in the bottom, sucked dry. Where there is a super or upper story on the hive there is hardly any feeder that is better.—ED.]

IN UNITING by setting one colony over the other, O. S. Rexford is told, page 919, that "the moved lot will give back many of its old bees to the old stand." Didn't you forget when you said that, Mr. Editor, that the moved lot has been imprisoned three days, according to Mr. Rexford? But I would strongly advise the unqueening of the moved lot. [You are right. I had overlooked the fact of a three-day confinement, and I therefore withdraw my objection.—ED.]

I'M AFRAID, Bro. A. I. Root, that some may take it, from what is said on page 921, that the conversion of a child is of less consequence than that of a grown person. I've known at least one minister to hold that view, but I hardly think you do. If John Smith is a better man for his conversion at 40, he should be a still better man if he had begun a Christian life at 20, and I don't know by what rule he should not be a still better man if he had begun at 10. Do you? The longer one works at bee-keeping the better bee-keeper he should be; and it surely ought to be true that, the longer one works at being a Christian, the better Christian he ought to be.

AFTER READING the new book, "How to Keep Bees," by Anna Botsford Comstock, I agree with Editor Hutchinson that it smacks of being written by one who had read up for it rather than by one who had got her knowledge from the bees themselves. Certainly any one who should rank it as the best book for a beginner, or for one who intends to keep only a few colonies, can hardly be as familiar as he ought to be with the contents of Root's A B C. [While the book may not be technically correct, yet it is a very nice addition to our bee-lore. Lack of technical accuracy would apply to several bee-books, but which, nevertheless, have very much merit.—ED.]

A PERFECT FEEDER for outdoors is called for, p. 906. There is none, except the flowers. Here's what I've tried, and if you're willing to take the trouble it works well:

Take a lot of brood-combs and spread them out flat where the sun can't melt them. Then spray them with feed. With combs enough, you can spray often enough, lightly enough, and with syrup thin enough, so the bees will gather no faster than on the flowers. [The plan you speak of will help to eliminate largely the scramble, providing the syrup is made weak enough. On the strength of the syrup hinges the whole thing. I think our plan now is a little better in that the bees are compelled to take many down-and-up flights before they can get a full load. For further particulars see editorial department.—Ed.]

That lot of schoolteachers, p. 914, looks as if you were doing something to bring this country up where Europe is in that respect, especially Germany. There a much larger proportion than here of the leading bee-keepers are teachers and preachers. Editors of bee-papers are mostly from those two classes. I've spent some time studying the faces of those Buckeye schoolteachers, and it promises much for the next generation to have their training in such good hands. Especially it does one good to see such clean-looking faces among the young men. I am sure some of those faces can't very well belong to a young man who isn't *clean inside.* [The A. I. Root Co. is making a strong effort to interest schoolteachers in bees; and now that nature-study is getting to be a regular department of instruction, it is much easier to wedge in the particular subject of bees.—Ed.]

Colonies in frame hives with combs built crosswise, we are told, page 919, "are practically as though they were in box hives, because the combs are immovable." True; but in many cases, at least part of the combs can be got apart in this way: With a hand-saw, saw down at each side of the hive, so as to sever the connections of the combs with the side walls. Now turn the hive upside down. If necessary, push down a little on the frames to start them out of the hive, then lift the hive off. That gives you a chance to separate the frames at any point where such separation is possible; and often by a little cutting you can free a comb so it can be shoved back entirely into its own frame. Indeed, sometimes, if the case is not a very bad one, all the frames can thus be got into place; whereas, in the first place not a single frame could be lifted out. [Your plan would be perfectly feasible with some hives of crosswise combs; but if one wishes to avoid a messy job the Heddon short plan would be preferable.—Ed.]

Speaking of two nuclei wintering in one hive, Mr. Editor, p. 902, you say, "Perhaps this remaining queen would have to be 'introduced' to prevent the motherless bees or those lately made motherless from attacking the new mother." I hardly think there would be trouble on that score. One of my greatest troubles with these double hives was to keep the bees from uniting. If there was a spot under or over the division-board where a single bee could get through, that invariably meant the peaceful uniting of the two sides if one was queenless, and I had a number of such cases. If you are thinking of wintering two or three nuclei in one hive, it may be of interest for you to read in Forty Years among the Bees, pages 285—291, also 244—246. If you want to have three nuclei in a hive, let me emphasize the point that the middle space must be not less than 2¼ inches. For successful wintering, that middle compartment should be crowded with bees. Years ago I used successfully ten-frame hives with six compartments of 2¼ inches each, and I see no reason why these might not winter well if crowded with bees. [We expect to test this method this winter in our bee-cellar. We are preparing to put some of our larger baby nuclei in also. Even if they should die the loss would be merely nominal, in bees at least.—Ed.]

GLEANINGS FROM THE PACIFIC COAST.

BY PROF. A. J. COOK, POMONA COLLEGE, CAL.

CARNEGIE RESEARCH FUND.

Among the many beneficiaries from the munificent gifts of Mr. Andrew Carnegie, few, if any, will work more real benefit than that granted for the promotion of research. A large endowment has been created which is to be permanent, and the entire proceeds of this are given into the hands of an able committee — men whose great ability and philanthropic hearts have been already proved by lives of rich endeavor and lofty purpose, and these men are to decide who shall spend this money, and where and in what lines it shall be expended. The fact that some thousands have been appropriated that Luther Burbank, the great plant-breeder of California, may give his entire time, patience, and energy to the grand work which has already blessed the world in such manifold ways and directions, shows clearly that this committee are very wise in their administration of the great trust handed over to them, and makes it equally patent that they have no prejudice against work along practical directions.

The other day I was looking through the hives of bees with Dr. Phillips, of the Department of Agriculture, and saw how wisely he had commenced with his various queens, like the fine large shining black Caucasian. These bees are so quiet that, though the weather was rainy, and provocative of idleness, and ill temper was with the bees, and though we used no smoke, and were rude and rough in our handling, even pinching the bees, we yet aroused no anger or resentment. Then I learned that he had planned work that would require years to complete, and work that would almost surely benefit greatly, not only our own bee-keepers but the bee-keepers of the whole world — work that almost surely, if carried to completion, would result in giving us improved bees. I bethought me at once that here was a most excellent place to put a considerable sum of this Carnegie research fund. The work will take years, and should be continued by one person. The one in charge should have high scientific instincts, culture, and enthusiasm. The work has great promise. From past action on the part of the committee in charge we may believe that this work with bees will surely appeal to them. I feel sure that, if our wideawake editor of GLEANINGS, acting in conjunction with Dr. Phillips, at once makes a movement in this matter, backed as he may and will be by the two powerful national organizations, and aided, as he should be, by letters from individual bee-keepers of every State, and, so far as is possible, from every county in the United States, written to the committee, we may almost surely count on certain success. I have written to two other papers whose editors will push their readers to action. I hope GLEANINGS will act at once. I believe here is a golden opportunity to do a most valuable and lasting service to our art. Through Dr. Phillips, give us the names of this committee, and then suggest, surely I need not say urge, the afore-mentioned societies, and bee-keepers everywhere, to aid in persuading the committee to make the needed appropriation. Surely if we do not succeed it will be because of lethargy or inaction among those who should be tremendously interested in this matter—the bee-keepers themselves. We may rest assured that GLEANINGS, true to all her history, will rise to the occasion and stretch to her full height.

A TACHINA FLY.

The supposed "bee" from Mr. D. La Berge, St. Louis, Mo., is a tachina fly, and, of course, belongs to quite another order than the bees. It has but two wings, like the common house-fly and mosquito. It belongs to the order *Diptera*, instead of *Hymenoptera*. It not only lacks one pair of wings but has quite a different mouth. Flies can only sip or suck; bees, wasps, etc., can both sip and bite. This is why we see flies about flowers. They are, like the bees, there for the nectar. These flies, then, help bees in the great work of pollinating flowers. The fact that flies keep company with bees in visiting flowers causes them to mimic bees, so that this is not an exceptional case of a fly being mistaken for a bee. In my next I will explain this mimicry, and give some very striking cases. These tachina flies are our decided friends. They are parasitic, laying their eggs on other insects. The maggots which hatch from these eggs penetrate the insect, which is thus victimized, and soon devitalize it, as they destroy its entire viscera. Thus the army-worms of California, which, in occasional years, as in 1895, do terrible damage in the gardens and alfalfa-fields, are cut short by these valuable tachina flies.

BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS.

THE GREAT SOUTHWEST, KNOWN AS THE BEST BEE-KEEPING, STOCK-RAISING, FRUIT AND TRUCK GROWING, AND GENERAL FARMING SECTION OF TEXAS.

Southwest Texas is one of the best sections of the Lone-star State where a man with brains and brawn can make an honest living. It is the bee-keeping part of Texas, and is known as such far and wide throughout the United States. Some of the largest bee-keepers are located here. For the diversificationist, those who wish to raise other things in connection with the product of the bee-hive, Southwest Texas offers a good opportunity as well as the specialist in apiculture.

Southwest Texas is situated in the famous coast country of the Gulf of Mexico. The climate is delightful and healthful.

BEE-KEEPING IN SOUTHWEST TEXAS.

Southwest Texas is a wonderful bee country. It is mostly of an arid nature. The growth covering it is mostly shrublike, with not many large trees, except along the rivers and lowlands. Strange as it may seem, nearly all of these shrubs are honey-yielders, and some of them—guajilla, catsclaw, mesquite, whitebrush, and some others—rank among the most valuable honey-producing plants. Besides these there are many smaller weeds and flowers of importance. A peculiarity is that these yield better during a very dry season than a moist one. "The dryer the season the better the honey crop," say the bee-men of this section. These shrubs take up moisture the previous fall and winter, and store up sap upon which they thrive the next season so that rains during the honey season are only detrimental. Another peculiarity is that, when the flow has once begun, swarming ceases, and the whole energy of the bees is bent toward storing honey.

There are many fine locations in many of the counties of Southwest Texas that are not occupied. Some can still be found along the railroads; but the best are further inward. Some of our largest bee-keepers are running "strings of apiaries" in such localities, and freight their crop to the nearest shipping-point by wagon with profit. With the coming of railroads new territory will be opened for the location of apiaries. This country is a good one for the diversificationist. Some of the following will interest those who are wishing for information about the country—bee-keepers and others.

POULTRY-RAISING.

This goes well with bee-keeping. Poultry of all kinds thrives here, and, like hogs, it is free from disease and epidemics in this country, while the feed crops for poultry and live stock are numerous and cheaply raised. The natural feeds on the ranges are unexcelled. The egg crop is good, and poultry has been shipped by the thousands. The day is not far off when much more will be shipped, both live and dressed.

HOG-RAISING.

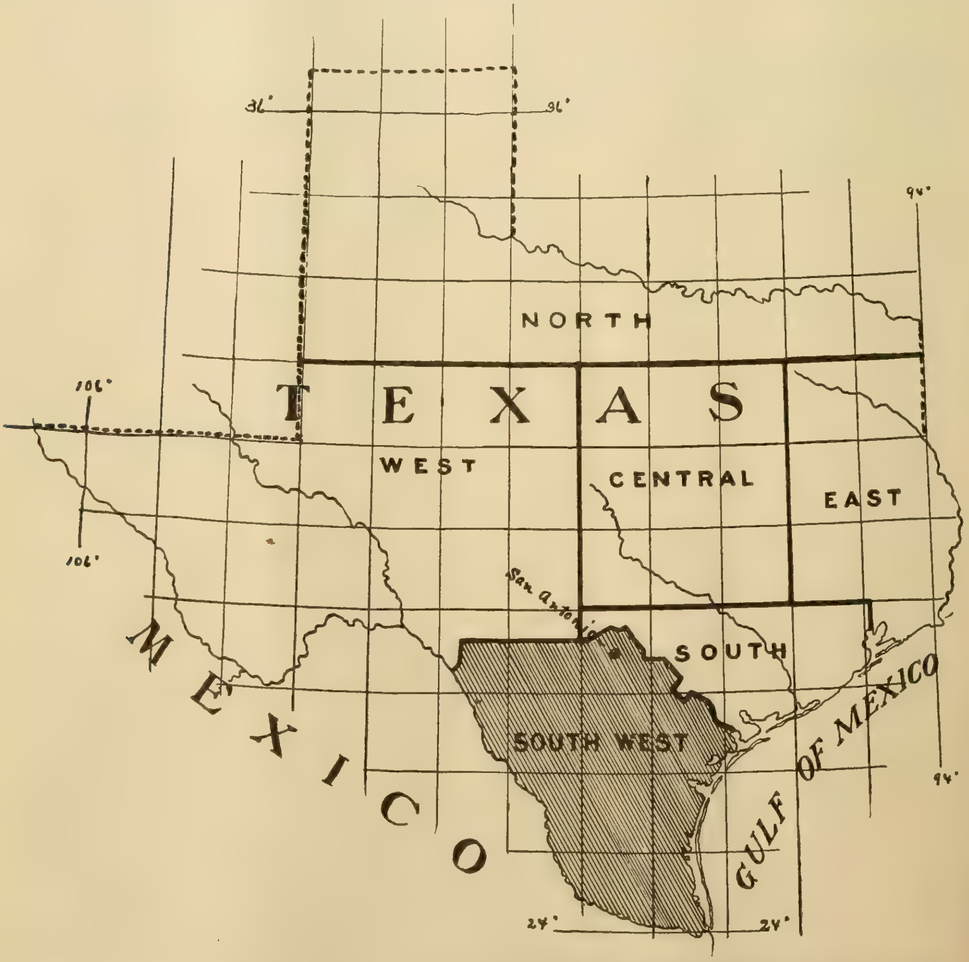
Hog-raising has been neglected to some extent; but of late stockmen and farmers have engaged in it more largely, and made good returns. The country is fine in natural feeds of the range, as well as all kinds of cultivated feed crops for hogs. The hog pasture with fence of wire netting, or of eight or ten barbed wires, is becoming more and more common.

SHEEP AND GOATS.

In early days hundreds and thousands of sheep and goats grazed on the broad prairies of this section; but during the last twenty years they have drifted west and northwest to the hills and mountain ranges. While these ranges and mountain streams were undoubtedly strong inducements to flock-masters, yet these small animals are still to be found on all well-regulated ranches, farms, and stock-farms. Many pastures are carrying their full complement of cattle and a full stock of goats and sheep.

HORSES AND MULES.

Breeding of fine horses and mules has been engaged in by a few stockmen and farmers on a moderate scale, but with most gratifying results, especially during the last few years, while the prices have been so high. The United States government pur-



Texas divided into North, Central, East, West, South, and Southwest Texas. The shaded portion is the famous bee country.

chased thousands of head of horses in this section during the war with Spain, for use in Cuba, Porto Rico, and the Philippines, because it was found that our stock was the best adapted and most serviceable in the armies in those countries. For the same reason the British government bought hundreds of thousands of Texas horses and mules for use in its armies in the Boer war in South Africa. Such indorsement from these great governments is quite valuable. It is said that Kentucky and Missouri have no advantages over this section in breeding and marketing this class of stock.

CATTLE-RAISING.

As a cattle-raising and stock-farming region Southwest Texas has always ranked at the head of the list. About 80 per cent of this country is occupied by cattle-pastures, and about 20 per cent by cultivated fields, truck-farms, etc. Here is where the Texas long-horn steer used to reign supreme. As a rule now, pastures are stocked with high-grade cattle, while many use only registered cattle or pure breeds. All the better class of ranches use registered or pure-bred bulls exclusively, claiming that it does not pay to waste money and grass on scrub stock of any kind. Quite a number of our stockmen breed registered cattle for the local market, and sell them at fancy prices to pasture-men who are grading up their herds. The great majority of the pastures, however, grow and finish beeves for local and northern markets, the majority of the pastures marketing only grass-fed beef, while some of the most successful and most prosperous stock-farmers sell only prime beef fed to a finish with native grasses supplemented with cotton-seed meal and hulls, buffalo hay, prairie hay, sorghum ensilage and sorghum hay; corn, pumpkins. Spanish peanuts, pie melons, cassava, Kaffir corn, millet, Hungarian grass, cow peas, etc. Beeves from this country are as highly prized in the Chicago market as the choicest from Iowa, Illinois, and Missouri.

DAIRY AND CREAMERY BUSINESS.

This is another that will go well in connection with bee-keeping. Every properly and well regulated farm in the country has a milk and butter department. Some of our best-fixed farmers have risen to prosperity by the aid of a few first-class Jersey cows properly fed and milked, and the surplus butter is sold on the local market, either on the open market or to regular customers under annual contracts. The farmer who sells butter seldom comes to town without something to sell, generally enough to pay for his purchases, leaving him a cash balance. A few American farmers pay current expenses of the farm and the family with the returns from sales of butter, poultry, eggs, vegetables, and fruits. Nearly all the German, Bohemian, and Norwegian families pursue that plan and save the proceeds of broom-corn, cotton, and other money crops. Quite a number of our farmers have bought cream-separators, and are shipping their cream to creameries. This new industry is destined to become an important one in the near future, as well as permanent. There is a variety of cheap feed here. The dairy or creamery herd is an excellent adjunct to the truck-farm, stock-farm, hog-ranch, or any department of agricultural operations.

Pickings from Our Neighbors' Fields By "Stenog."

It is a good indication for bee-keepers when the great dailies publish so much in regard to bees, especially when the information emanates from some reliable bee-keeper. These articles are appearing here and there with commendable regularity, and are doing much to educate the public in the right direction. The latest one I have seen, and one of the best I have ever seen, appears in the *Sunny South*, of Atlanta, Ga., written by Hilton Castle; but I more than suspect that Mr. Udo Toepperwein, of San Antonio, Texas, stands back of the statements. I think it will not be devoid of interest if I make a few clippings from this article, doing so at random and without any attempt to connect them:

> According to the last federal census Texas leads all other States in the production of honey, having to her account in 1900 nearly four hundred thousand colonies of bees, with an annual output of more than four million pounds of the product.
>
> Seventeen per cent of the farms of Texas raise bees. The reason for the popularity of apiculture in the State is easily accounted for to the traveler. From the car window, if his trip be in the floral season, he sees spread out before him wild flowers which in grace, coloring, and beauty are unrivaled even by California's famous flora. The greater portion of these wild flowers are nectar-producing.
>
> Bee culture in Texas, commercially, is a recent industry. Fifteen years ago primitive methods of management principally obtained, and the output was small. The old-fashioned hive was everywhere in evidence, as it is even to-day in some communities. The present tendency is strongly along progressive lines. There are a large number of apiaries in the State which are run on strictly scientific principles, having up-to-date frame hives that put to shame the old "log gums" of unprogressive apiarists.
>
> There are bee-keepers in Texas who own as many as a thousand or fifteen hundred colonies, some of these colonies producing from one to two hundred pounds per colony. San Antonio is the largest distributing point in the State for apiarian supplies, having two of the largest establishments of the kind in the country.
>
> While Texas stands first in production of honey and in number of colonies, she stands low on the list in some other ways, according to her census of 1900. Arizona, per colony, averages 49 pounds; California, Colorado, and New York, respectively, 29, 26, and 18 pounds per colony; Texas, 12½ pounds per colony. Her average is low, owing to those unprogressive bee-men who cling to the old-style hives, which yield but a few pounds of honey per colony, and who are averse to "intensive" bee culture.
>
> Mr. Udo Toepperwein, a native Texan, and ex-president of the Texas Bee-keepers' Association, knows pretty well all about the honey status of Southwest Texas. He has been a bee-keeper from childhood, and is the son of an apiarist.
>
> He says: "I can remember when farmers in Texas kept from one to two dozen box hives. These consisted

of empty logs, with a board nailed at the bottom, and one for a cover with a hole in it for the entrance. When the gums get pretty heavy, in the spring, the cover was knocked off, and the honey cut out while smoking with rags.

"By this mode a good deal of pollen and larvæ and grown bees were taken out with the chunks of honey, and pressed with it before it was strained. The wax would then be melted, and sold at from 10 to 15 cents per pound. The industry gradually grew as the farmers became more appreciative of the abundant wild flowers of the State, and its advantages for the honey products. Up-to-date movable-frame hives, extractors, and smokers gradually came into use. North Texas is not so well adapted to the raising of bees on account of the prairies. Southwest Texas is more brushy, and the flowers that bloom in this region are generally nectar-producers, and the nectar easily accessible to the bees.

"In three of my apiaries, which are located in the horsemint section, my man says between the 1st and 10th he will take off forty thousand pounds of bulk comb honey, which is a great deal for one flow.

"In Uvalde County, where there is an abundance of catclaw and guajilla, the bee-keepers often average 200 pounds per colony. I have known them to get 400 pounds per colony when the colony was very strong in number of bees."

The largest honey-producing county in the United States is Uvalde, Texas, where many thousands of acres of guajilla, mesquite, and catclaw are to be found. The climate is dry and warm.

Editorial
By E.R. Root.

THE Jenkintown meeting of bee-keepers, on the 7th of this month, near Philadelphia, Pa., was pronounced an unqualified success. There were something like 400 present, and in the matter of attendance this convention excelled that of any National meeting so far as known. A further account, with a verbatim report of some of the speeches, will be given later.

GLEANINGS WITH A SUBSCRIPTION-LIST OF NEARLY 22,000.

OUR binding department now shows that GLEANINGS has a subscription-list of nearly 22,000. We are printing regularly 23,000 copies each issue, the surplusage to supply the demand for sample copies. The last issue reached 30,000. In spite of the unfavorable season our subscription-list has been growing at a rapid rate. This is perfectly logical. When the seasons are unfavorable one needs all the hints he can get in his business in order to enable him to make a success. It is poor economy to cut off the valuable interchange of experiences that one gathers by reading about the work done by others.

THE CANDY-MAN AND ROOT'S BEES ON THE ROOF IN NEW YORK CITY.

FOR the last two or three weeks the newspapers have been full of items about The A. I. Root Co.'s bees on the roof of the building where its office is located, 44 Vesey St., New York. A candy-man complained that the bees in question were interfering with the work of his employees, and he appealed to the Board of Health, averring that the bees not only helped themselves to his sweets but stung some of his girls. The result was the issuing of an order by the said Board, requiring that the bees be removed from the roof. As there was an important principle involved, this order, if carried out in our case, would require the removal of all the bees in the city of New York, including those owned by the city in Central Park. Our managers at Philadelphia and New York made repeated representations to the Board, the result of which was it granted a stay of proceedings. The whole matter is in *statu quo*, and what the outcome will be can not now be determined.

There are two other roof apiaries as near to the aggrieved candy-manufacturer as our own. The Root bees can not, therefore, be the only trespassers, if trespassers at all.

CAUCASIAN QUEENS.

DR. E. F. PHILLIPS, in charge of apiculture, Division of Entomology, Washington, D. C., authorizes me to say that the only imported queen of the Caucasian race in the apiary of the Department is dead, and that it will be necessary, therefore, to stop the distribution of these queens for the present. There is now a terrible uprising in the Caucasus regions of Russia, and this renders it impracticable for the Department to get any more importations for this season. The A. I. Root Co. has two queens which seem to be fully up to the standard. Should they winter successfully we may be able to supply some half-bloods — Caucasian-Italian — and possibly some pure queens next season, but no deliveries can be made before June 15tn at the earliest.

A SCHEME TO DRAW CROWDS AT A HONEY-STAND; HANDLING LIVE BEES BEFORE THE CROWDS AT COUNTY FAIRS.

EVERY year we do some business in selling bottled and comb honey at our county fair. This year we thought we would try the experiment of a "drawing card" by putting a man in a wire-cloth cage, with a dissected colony of bees on an elevated platform. We accordingly built a cage 5½ feet high, 6 feet long, and 4 wide, having a door on one side so that the operator could step in and out without tipping up the whole cage. We selected a colony of gentle bees, moved it off its regular stand, some distance away in the bee-yard, so as to let all the flying bees get out. We then moved it over to the wire-cloth cage before mentioned. When the crowds began to assemble we put one of our apiarists inside and had him open the hive, hunt the queen, lay his hands on the bees, practice shaken swarming, take up the bees by the handfuls, etc. When one man became tired of demonstrating, another would step inside. Did it draw the crowds? Well, I will show you some photos in a future issue, taken on the spot, that will speak plainer than words. Did it increase the sales of honey? It came very near doubling them; for each operator gave a little lecture about the qualities of honey, the handling of the bees, etc. This was to whet the appetite of the crowd. In the mean time one of the boys in the honey-stand, with a speaking-tube, would keep up the call, "Here is where you get your good honey!"

The largest sales, without the demonstrating-cage, at any previous fair, was $75; but the sales of honey recorded this year, the very first one we tried the experiment, was $120. A number of pictures were taken, and more of the detailed story will be given later. As many county fairs will be held after this issue, those interested can profit by our experience.

A good demonstration can be made in an ordinary folding bee-tent such as is sold by dealers in bee-supplies for $1.75. It is not quite so roomy as the wire cage described, but will answer a very excellent purpose, besides being collapsible like an umbrella, and portable.

A CURE FOR BLACK BROOD.

It is with considerable pride that GLEANINGS announces that it will soon publish what we hope to be a reliable, simple, and cheap cure for black brood. It is so simple and cheap that it seems almost absurd. Yet the proof of the pudding is in the eating. Not many days ago I came from a yard that, two or three years ago, had been seriously affected with the dread disease. This yard was none other than that of Mr. E. W. Alexander. The disease was so virulent that it wiped out his profits for two or three seasons. To-day the whole apiary of 750 colonies is perfectly healthy. Mr. Alexander has struck on a plan which he has never yet made public; but now having tested it for two seasons he feels reasonably certain that it is reliable.

GLEANINGS has made him a proposition, which he has accepted, for publishing it to the world, and the treatment will appear in these pages soon. I have every reason to believe it will be the means of wiping out the last vestige of black brood in all apiaries when the treatment is intelligently and carefully administered. In other words, the up-to-date progressive bee-keeper will not fear the inroads of this terrible disease any further; but the slovenly, careless, don't-read-the-bee-papers bee-keeper will have to go out of the business.

I do not know whether this treatment will be effective in a case of foul brood—I rather doubt it; but you may be assured that it will be tested by hundreds of bee-keepers all over the country. At one time black brood threatened to devastate the whole country, and would have made serious inroads into other States had it not been for the efforts on the part of the foul-brood inspectors of New York. I will not say more, because I am going to let Mr. Alexander tell his own story.

HOFFMAN FRAMES; A FEW WORDS ABOUT HANDLING THEM, BY A BROTHER-EDITOR; TIT FOR TAT.

OUR readers may remember a little discussion between the editor of the *Bee-keepers' Review* and myself, on p. 762, July 15th GLEANINGS, regarding the merits of the Hoffman frame, the Dovetailed hive, bottom-boards and covers. He copies in full my reply, and then says:

> It affords me pleasure to have my brother-editor admit that he has no trouble in spacing the old-style Langstroth frames. I fail to see how any one of ordinary intelligence need have any such trouble. If a man does have trouble, let him do this: Let him carefully space the frames in a hive, and then note the space between them. Let him fix this in his memory and use it as a guide. For instance, my frames are spaced 1½ inches from center to center, and my frames are ⅞ wide, that is, the top-bars are that width, which leaves a space of ⅝ between the top-bars. When I am putting combs into a hive I begin at one side and space them ⅝ apart as I am putting them in. I don't put them all in helter-skelter, and then even them up afterward. Of course, I may have to press the last one or two a little closer together before I slip in the last comb, then I slip them back into place. The point is, I have in my mind's eye that ⅝ measure, and use it when putting the frames in the hive, just as the self-spacers would use nails driven into the sides of the frames. Of course, it is not important that the frames be exactly ⅝ apart. They may vary ¼ inch from this. It often happens that the ability to make this variation is an advantage. With self-spaced frames no variation can be given.
>
> Lock-jointed corners make stronger joints than those that are simply nailed. Iron-bound corners would probably be still stronger, but such strength in a bee-hive is wholly unnecessary. If bee-hives were to be used continually for shipping goods by express, then there would be good reasons for making the joints as strong as possible; but, as a rule, a hive stands in an apiary the whole of its lifetime. If it is moved from one apiary to another, or even if sent by express, it is always attached to a solid bottom-board which holds it square. If a hive is thoroughly nailed with cement-coated nails of good size, the heart side of the lumber being turned out, it will have all needed strength without any lock joints, or even any halving of the corners. In my opinion, these dovetailed corners will yet prove a serious objection. It is well known that, where timbers exposed to the weather cross each other, they are much more liable to decay—for instance, in bridges and sidewalks. In a plain square joint at the corner of a hive, the water can easily run down and out. Not so with a dovetailed corner, as half of the surfaces are horizontal, and the grain of the wood crosses at right angles. What I fear is that those dovetailed corners will, in a few years, begin to decay, because of their tendency to absorb and retain moisture. Of course, if they are kept well painted this will not occur; but the painting of hives is often neglected. To my mind, the making of hives with dovetailed corners is worse than useless expense—it will eventually prove a detriment.
>
> Bro. Root speaks of the advantage of being able to handle Hoffman frames by the twos and threes. In fact, he speaks of this point as being of more importance than the self-spacing feature—at least, I get that idea from the way he writes. I have seen a good many Hoffman frames handled, handled a few myself, and have handled a large number of Heddon frames which allow of this manner of handling, and I must confess that I have seldom seen this manner of handling put into practice to any great extent. If we are handling frames in the production of extracted honey, they certainly must be handled singly. If we are looking for a queen the frames must be handled singly. If we are looking for a queen, and have been setting the frames over into another hive, we can replace them, after *finding* the queen, by taking them in threes if our fingers are long enough and strong enough to stand the strain.
>
> I have never had any difficulty in securing wide boards for covers, but it is quite likely that the factories would have difficulty in finding enough wide lumber for this purpose at a reasonable price; and it is probable that, whether we prefer them or not, we shall eventually be compelled to use covers made of several pieces.
>
> This shot about the Heddon hive and complication is a close one, and compels me to reply by "telling tales out of school," if such it might be called. In the new

edition of "Advanced Bee Culture," now on the press, the Heddon hive will not be placed at the head. In the last few years new features have sprung up in bee-keeping, notably that of "shook swarming;" and a hive that might be desirable in one epoch is not so in another. When I found myself drifting into bee-keeping again, I noticed that I did not adopt the Heddon hive. When I wrote the chapter on hives, it was quite a wrench to change it over; but I made it conform to my belief and practice.

It is really a pleasure to have a discussion with an opponent so fair as Mr. Hutchinson always shows himself to be. So fair is he, in fact, there is not very much left to say, for it is simmered down to a mere difference of opinion. But there are one or two points, perhaps, that I should mention.

My brother-editor, with considerable show of reason, brings up the question whether or not the lock-jointed (Dovetailed) corner in a hive is not stronger than it needs to be. Perhaps; but I have seen so many of the old lap nail-cornered hives gaping or weak in my travels among bee-keepers that it does not seem to me that making them strong at this very vulnerable point is a bad fault, if, indeed, it is a fault at all. Better by far be too strong than too weak; and as the factories make them it adds but little to the expense. As to the durability, there are hives in use that were made sixteen years ago with this kind of corner that are still good and strong, notwithstanding the paint-brush has never touched them. Theoretically the lock cornering might let in the weather where the fingers cross, causing premature rotting; but *actual usage* does not show that such corners rot more than the lap joint, at least that is my observation. I will admit that some hives with lock corners, in a dry climate like that of Colorado, might look the worse for wear. But the old lap-nailed joints, so far as I remember, looked far worse and required much more careful handling.

Let me take one incident showing where a strong joint has a distinct advantage. Suppose I have to remove an upper story from an extracting-hive. I have taken out all the frames, and there are a good many bees clinging to the inside of the story. If it is dovetailed at the corners I can throw it up in the air and let it come down in any old way, dislodging the bees; but if simply nailed, the thing is liable to come down ker-smash, or so badly racked that it will require the vigorous use of a hammer and more nails.

In his last paragraph he refers to a statement of mine that the Dovetailed hive with Hoffman frames was no more complicated than the Heddon hive with closed-end frames and thumbscrews. In this he exhibits a characteristic that is all too rare in the average correspondent, or, if you please, editor, of the day. There are very few men who in an argument, even on the printed page, will gracefully, if his opponent happens to land a good square shot, acknowledge that he has been hit. I trust that I may be as willing to do likewise.

Well, it is *my* turn to "tell a little tale out of school." When I visited Mr. E. W. Alexander I became convinced that, when the hives are used exclusively for extracting in one apiary, and seldom or never moved, the old-style unspaced Langstroth frame has many distinct advantages peculiar to itself. These may overbalance those of the Hoffman when used for extracting. The only question with me, or ever has been, is, which frame (the Langstroth or Hoffman) was better adapted to the use of farmers or beginners. I am still of the opinion that the two classes mentioned should have a frame that will space automatically and exactly right. If Bro. Hutchinson had had the same experience I have had in getting beginners to space the frames right, and if he had bought up as many colonies of bees from farmers with the old frame as we have done, he might, perhaps, "tell another tale out of school."

A FAIR ANSWER TO A FAIR QUESTION.

At the Philadelphia meeting, held at the Root Co.'s Jenkintown apiary, the question was asked, "Why does the Root Co. seek to get the yields of bee-keepers all over the country, and yet withhold its own?" This is a fair question deserving a fair answer. In the first place, we ask for reports from producers all over the United States in order to give to our readers some idea of what the crop has been or will be. The value and importance of this information, coming at a time when everybody wishes to know whether the season has been good, medium, or poor, can scarcely be overestimated, *as it has a direct bearing on prices*. This question does not admit of argument. But you ask, "How about the latter half of the question? Why does not the Root Co. report its own honey-yield?" While it is true we have apiaries located in different parts of the country, those yards are devoted exclusively to the raising of bees and queens. Our whole aim and effort are to get increase of colonies, and queens in large numbers. This means that honey that is gathered is converted into bees and queens; and even then we have to buy largely to supply our demand. While we sometimes secure from 50 to 200 lbs. from individual colonies, cases of this kind are rare, especially at the Medina yards, where the locality is poor. We always have to feed after clover and basswood, to prevent starvation, for we have no late summer or fall flow.

THE CHANGE IN THE PLACE OF MEETING OF THE NEXT NATIONAL CONVENTION.

It will be seen in Convention Notices that the Executive Committee of the National Bee-keepers' Association, owing to the prevalence of yellow fever in the South, the rigid quarantine in several of the States, and the poorness of the season throughout Texas, has decided to change the place of meeting from San Antonio to Chicago, the same to be held during the fat-stock show, Dec. 5, 6, and 7.

I believe the action of the Executive

Board is wise under the circumstances; for I hold in my hand documentary evidence showing that rigid quarantine has been placed on Mississippi and Louisiana, and a limited quarantine on Tennessee, Kentucky, and Arkansas, and that Texas has declared complete quarantine against Louisiana and Mississippi. I am also informed that some of the Southern roads have pulled off some of their good trains. While we all, of course, seriously regret the conditions that make this change advisable, I believe we should all with one accord strive to have the next meeting at San Antonio in 1906. It is due and right. Then let us all combine to make it the biggest convention ever held in a State that has bee paradises galore.

Later.—Since writing the foregoing I have learned that the yellow-fever situation is so serious that it has been deemed wise to postpone the State fair to be held at Dallas, Texas, till a month later. This, I believe, will bring it till after the first frosts, thus effectually stopping any further spread of the disease. The question might be raised, "Why not have postponed the meeting at San Antonio till after the frost?" Whether the committee considered this I do not know; possibly this would have brought it to a time when no reduced rates could be secured. By holding the meeting at Chicago, in December, reduced rates will be guaranteed beyond doubt.

PROPORTION OF SUGAR TO WATER IN BEE FEED.

THE old rule used to be two parts of sugar to one of water, the mixture to be placed on the stove, and heated until all was dissolved. But the rule now seems to be to mix *cold* one of sugar and one of water, for the reason that syrup more nearly approaches the consistency of nectar, and hence it is better ripened by the bees before it is put into the comb. I am not sure but we might feed to advantage, if early enough, two parts of water to one of syrup; but at this time of year I would not make the syrup thinner than equal parts; and late in the fall, if feeding should, unfortunately, be deferred, use a syrup made of two parts of sugar and one of water.

INDOOR OR OUTDOOR WINTERING.

THE question will arise in the minds of many whether the indoor or outdoor method of wintering should be practiced. In the average latitude, along the 41st and 42d parallels, outdoor wintering, especially in the hands of beginners, should be practiced. North of parallel 42, indoor wintering may be practiced to advantage providing one has a good dry cellar where the changes of temperature will not go below 35 nor much above 50. Outside winter cases may be put on to advantage, even during September — the earlier the better. There is not much harm in getting too much packing; but considerable loss ensues if the protection is too meager.

THE CASE OF THE BEES ON THE ROOF IN NEW YORK CITY.

SINCE the editorial elsewhere in this department was printed we have received notice from Mr. Selser that the case of the bees on the roof will be dropped, probably, without prejudice to either side. Two orders for bees will take nearly all those on the roof, and the rest will follow soon.

BROOD-REARING STOPPING IN SEPTEMBER.

EVERY fall we get letters from bee-keepers, asking why their queens have stopped laying. They wonder why the queen has failed, and often send an order for another queen. Of course, old veterans know that the average queen will stop laying, in many localities, during the latter part of August and during September and October, particularly if there be no fall flow of any kind. This season, goldenrod will yield honey in many localities; and where such is the case brood-rearing will, perhaps, start again temporarily.

CONTRACTING ENTRANCES IN THE FALL.

BEE-KEEPERS in the northern States would do well to contract the entrances of all the colonies down to not larger than 6 inches by ¼ inch deep. Weaker colonies will stand a still smaller entrance. While the days may be hot at times, cool nights make it advisable to have small entrances in order to protect any brood that may be in the hive. Of course, all entrances should be contracted during *cold* weather; but we practice and advise contraction as early as the first of September. In localities where there may be a good honey-flow on, of course leave the entrance open wide enough so the bees can go and come comfortably without crowding.

SOME OF THE POSSIBILITIES OF OUTDOOR FEEDING; ITS USES AND ABUSES; EXTRACTING IN A DEARTH OF HONEY WITHOUT ROBBING.

WE have overcome to a great extent the difficulty of wearing out bees experienced with the outdoor feeding as mentioned on p. 906 of our last issue. We use 60-lb. cans with small holes punched in the top as before. These are *now* filled with syrup of the consistency of two parts of water to one of sugar. The weaker syrup has less of a tendency to make the bees scramble against each other. Then, to mitigate further the damage to the bees by reason of their struggling against each other, the 60-lb. cans are elevated some *ten feet above the ground.* The wire bail or handle that is in the top is unsoldered. The can is then turned upside down, and the handle is soldered to the bottom. The other end of the can is perforated with small holes, as before explained. A rope is passed over a limb of a tree, 12 feet or more above the ground. When the can is filled with the two-to-one syrup, the rope is tied to the bail (now on the bottom of the can), when the can is hauled up to the height of about 10 feet. It may take several hours for the bees to find it; but when they do they will begin in earnest. The bees will form in bunches at the perforations, and drop down; but instead of dropping with a thud or a jar to the ground or in the grass, sustaining more or less of a shock, and wearing out their wings in the scramble to take wing in the grass, they catch wing *before* they actually strike the ground, and fly up again. They no more than get a little sip of syrup than down they go again, catch wing, fly up, take a sip and down again, and so on. The under side of the tin is so smooth that there is nothing for the bees to cling to, and they can not do very much scrambling. But just the minute two or three get to tugging at the same hole, down they go. The result is, we have produced almost all the conditions of an artificial honey-flow. It takes the bees so long to get a load of syrup that they fly back and forth to the hives quietly, and without excitement. Two 60-lb. cans of dilute syrup will keep a yard of some 300 colonies during an absolute dearth of honey quiet for a couple of days so that the hives can be opened indiscriminately, and combs exposed without any robbing. It begins to develop now that the bees that do most of the robbing represent but a very small portion of the whole yard. It is these that we keep busy by outdoor feeding. As they can not do any scrambling to any extent there is not the same wear and tear that we experienced in our early experiments. We fed up for winter all of our 300 colonies at the home yard by this outdoor feeding. What is more, this syrup is ripened in nature's way, and therefore must make an ideal winter food.

I am becoming more and more convinced that there is more to this outdoor feeding than we formerly supposed. Very often extracting has to be deferred until after the honey-flow, or during an absolute dearth of honey. It is *then* that robbing will go on at a furious rate; for it is simply impossible, in opening the hives, shaking and brushing the combs, to prevent robbers from getting a sip of honey now and then—just enough to put the whole apiary in an uproar. Although I have not tried it, I feel confident that this robbing nuisance can be entirely overcome. Take ordinary cheap honey, and dilute it considerably with water. Put it into two square tin cans prepared in the way I have described, two days before extracting is to be done. I recommend in this case the use of *honey* rather than syrup, so if some of the fed product goes into the combs that are extracted it will do no harm, because it will be honey just the same. In the two days intervening the bees will have found the feeders and will get nicely started. Probably the two cans of feed will last them for the two days. Two cans more, at least, will enable the apiarist to extract all of his honey; for the would-be robbers have become accustomed to the feeder; and if some few bees should steal a little honey from the combs it will not cause a *furore*, because other bees will naturally suppose it comes from the feeders. The net result of this is, that 100 or 150 lbs. of honey borrowed from the bees enables one to take from them several tons of extracted honey in a dearth.

A few days ago at one of our outyards the the boys attempted to do a little in-hive feeding. It was not long before the apiary was in an uproar, and one of the men phoned up to our office to know what he should do. I telephoned back to restrict the entrances of all the hives with green grass, and stop inside feeding or opening up any more hives, and to prepare immediately two square cans for outdoor feeding. This they did, hanging the cans on the limbs of two near-by trees on the outskirts of the yard. It took the robbers a little time to learn where the feed was. As soon as they discovered it, robbing began to let up. The next day one of the boys went back to finish up his work with the colonies. He opened up the hives indiscriminately, without any trouble from the robbers. I am sure we could have done extracting or any thing else, because the combs were exposed just as much as if extracting had been going on.

A good many county fairs will be held now within the next thirty days. Some bee-yards will be located near some of these fairgrounds, where watermelons will be cut open, and molasses candy made. If two outside feeders be hung up two days previous to fair time it will effectually stop any robbing on the part of the bees around any of the candy-stands. We demonstrated this conclusively a year ago, and we now feel that we are master of the situation.

But there may be some canning of fruit; and if your bees are a nuisance, start an outdoor feeder and keep it going until the canning season is over. Perhaps the owner of a cider-mill lodges a complaint. As he will probably run his mill for thirty or ninety days it will not be practicable to run outdoor feeding for that length of time, unless the whole apiary needs a general feed.

The best thing to do in that case is to get mosquito-netting and screen the mill. If, on the other hand, the yard is short of stores, and will require the feeding of several barrels of sugar, and if there are no other bees in the vicinity, outdoor feeding can be practiced to great advantage.

So far I have not said any thing about the abuse of this method of stopping robbing by giving the bees food. One of the abuses is letting the bees get at the syrup so that they can take 50 or 100 lbs. within an hour, wearing their lives out prematurely. The grooved-board plan makes this possible; while the square can, with holes punched in it and elevated ten feet above ground, reduces the wear and tear to a minimum, or not much more than a natural honey-flow.

Another abuse would be feeding your neighbors' bees or stray bees in bee-trees. Obviously the only thing to do is to feed in the hives, unless you can arrange with your neighbor to pay his pro rata of expense.

GENERAL CORRESPONDENCE.

NOISE AND SWARMING BEES.

BY PROF. EDWARD F. BIGELOW.

The following item has been published recently by several newspapers:

> BELLS AND BEES.
>
> It is a foolish notion to suppose that the ringing of bells or "tanging" of tin pans will cause a swarm of bees to settle. The origin of this custom dated back to the reign of Alfred the Great, who, in order to prevent disputes regarding the ownership of a swarm, ordered that the owner should always ring a bell when his bees swarmed, and ever since then the good farmer's wife has been rushing out with ringing bells whenever the bees swarmed; and the fact that they settled verified, in her own mind, the belief that the bell did it.

The ringing of bells may or may not be a "foolish notion." This much is, however, to be said in its favor. It is not so foolish as the explanation of the origin of the custom is false. This so-called explanation is an insult to all country people who have practiced the custom of making a variety of noises at swarming time. The custom has never been limited to the ringing of bells and the pounding of tin pans, but includes also throwing dirt, yelling, shooting at the swarm, flashing light from mirrors; in fact, old and young at such times have always joined in a regular Fourth-of-July demonstration with a general pandemonium of noises. Surely Alfred the Great did not promulgate all these to maintain ownership, neither has any other royal authority done so. I wrote to the Professor of History in each of three leading universities, and every one says that Alfred the Great never issued such an edict. I quote from Prof. Charles Beard, of Columbia University, while letters with practically the same statements were received from the others:

> I have looked up the question of Alfred's edict on bees. I can find no record of such an edict among the documents that have come down to us from Alfred's day. It is probably an old custom attributed, like most early English institutions, to Alfred. I regret that I have not been able to find any traces of the origin of the tradition.

Such items, going the rounds of the newspapers in a variety of forms, are evidently due to the dreams of some space writer. Their only value is so much a line to the originator.

What appears at first thought to be an interesting explanation of a common old-time country custom is the rankest of insults. Our fathers, grandfathers, and the members of their families may have been mistaken, but they were not so foolish nor so nearly insane as to unite in a work for which they could give no reason, and from which they derived no benefit. Their theory was that any kind of confusion forced the bees to alight because the noise prevented them from following the leadership of the queen. And may not this theory have at least some truth in it? Country people are pre-eminently practical, and not much given to theorizing. There must have been results to have made such a custom widespread for generation after generation. Even our imaginative reporter admits age to the custom, carrying it as far back as the time of Alfred the Great! Many a country-born and country-bred person will tell you that he recalls many an experience in boyhood days of runaway swarms forced to alight by some kind of hubbub, or a confused uproar of discordant sounds. Practicing the custom may have been ludicrous, and doubtless it was in many respects; but the theory seemed reasonable. Flight requires leadership—call it the leadership of the queen or "the spirit of the swarm," or what you please. Confused, irregular, and violent vibrations must interfere with this leadership, especially when such highly organized and sensitive creatures as bees are concerned.

Drive a flock of sheep on a country road. Three or four will make a dash for a cart-path into the woods, or through the lowered or fallen bars. Throw a stone among those few, confuse them, and their leadership is at an end. No more sheep go aside. Sheep are not so highly organized, neither have they so delicately balanced a nervous system as bees; but, stupid as they seem, if you throw stones ahead of the flock, all are checked or stopped.

I know that a writer on the subject of "Bees," in Appleton's "New American Cyclopedia," says, "It is generally irritating to the bees, and unnecessary if not useless, to endeavor to make the swarms collect by a din of horns, tin pans, and bells." Irritating to the bees? Of course it is, and that is exactly what it is intended to be. I have been familiar with the process from my earliest youth: it is among my first experiences and recollections; and although my personal antiquity does not reach quite back to the time of the Great Alfred, yet what has always been done must have a good reason for its continuation in modern times. One of the most pleasing recollections of my boyhood is a remembrance of the sudden outburst of a rattling tin pan, and of the ringing of an iron pot lustily beaten by my bee-keeping neighbors. That discordant uproar lent speed to my feet, and got me through the fence with unconscious alacrity, to find Aunt Annie, with lips compressed and a look of determination on her face, beating a tin pan with the poker, and Uncle Joseph leaping about the garden path, hatless, coatless, but vehemently pounding an iron pot with his cane. The air was full of bees, and full of a clamor that filled me with delight. "Get a pan, child alive, and be as quick as you can! Pound, now—pound hard—I can't lose this swarm." And she never did. My noise was above all other noises, you may be sure, and the swarm always alighted on the pear-tree above the original hive.

I recall that our hired man was hoeing in a cornfield on the summit of a hill. A swarm of bees flying over came very low to the ground. He threw dirt, and yelled like a madman, partly because he knew of the custom, and perhaps even more because he was frightened. The bees alighted on an apple-tree not two rods away. He ran to the farmhouse, a quarter of a mile away. Several members of the family went with hive, sheet, and other paraphernalia, and the swarm was brought home.

I have my suspicions that "Dutch Willie," the hired man, was "irritated." Perhaps the bees were also. Just how much was "unnecessary" I don't know. I have recorded the events. The reader may speculate as to how much was cause and how much effect.

I never, in all the days of my youth, knew these pan-beating and pot-pounding neighbors to lose a swarm; and the boy never lost an opportunity to help, at a safe distance, and to make a racket, while these were the only occasions when he was not reproved for his noise.

Whatever may be the philosophy of it, the result is eminently satisfactory; and although the learned writer in the Cyclopædia says the noise is irritating and unnecessary, if not useless, yet I am constrained to remind the reader of that proof of the pudding, of which he has so often heard.

It is important to note that the custom has been discredited and ridiculed only by those who have never practiced it.

Stamford, Ct.

[It is possible that bee-keepers heretofore have not given enough attention to the subject of noises of some kind to drown swarming-notes, either of the queen or of the scouts; but from experiments which I have made myself I am satisfied that water from a spray-pump, thrown on bees while in the air, is vastly more effective than any noise that may be made. The effect of the water is largely mechanical. It weights down the wings, thus impeding flight. It may also have the effect of making the bees believe that a rain is in progress, and that, therefore, it were better to defer the swarming until a more favorable time.

Whether a noise of some kind has a tendency to induce the swarm to alight may be hard to prove, for the simple reason that ninety-nine out of every hundred swarms will cluster any way before taking a final flight to its future home wherever that may be.*

But I am sure of this much: That with a spray of water I have been able to head off a swarm and drive it in almost any direction I desired. Some years ago, when I was making some experiments along these lines, I found I could drive a swarm of bees while in the air all over the field; I found I could even direct their flight toward some particular tree; then when they were flying around it I doused them freely with water. If I remember correctly, some have reported that throwing dirt up among the bees will produce practically the same effect. While it might impede their flight somewhat it would not make it laborious so the bees would be compelled to seek a place of rest, and where, too, they might discuss the question of a rainstorm in a bright sunshine.

That the tanging of tin pans and pounding on old kettles originated in a certain edict of Alfred the Great or any other king, is possibly a myth. The only reference that I can find in our works is a statement by Huber, who, referring to the custom of ringing bells, etc., says, "Butler thinks that these noises were originally intended to proclaim to the neighborhood that a swarm had risen, and that they might know whence it came and to whom it belonged." We consulted our volume of Butler's Feminine Monarchy, bearing date of 1609; but after a careful search we do not find any reference to the custom or its origin. I conclude, therefore, that Huber referred, evidently, to some statement made by that author in his Latin works, for he was a prolific writer, even at that time, on agricultural subjects, both in Latin and English. Butler, if any one, would be liable to make reference to the ancient custom, if it existed, because he probably would be familiar with any edict that might then have been in existence or previously in force in England.—Ed.]

Later.—After the above was written we mailed a copy to Mr. Bigelow, who says:

> I have my suspicions that the origin of this story is in *real merit* and efficiency, probably exaggerated in some respects by actors and then leading to ridicule on the part of others.
>
> As a countryman I resent the imputation by the so-called funny papers that "we farmers" have been doing such "fool things" for many generations. I guess we know what we are about, some of the time, city chaps to the contrary notwithstanding.
>
> Edward F. Bigelow.

PAPER SECTION BOXES.

Why Not Follow in the Footsteps of the Manufacturers of Berry-boxes?

BY J. E. JOHNSON.

Seeing that Dr. Miller and the editor of Gleanings are having considerable of a controversy about basswood getting too high in price for sections, I should like to offer a few words.

For several years I have been using two-piece wood quart berry-boxes for strawberries and raspberries; but this year I tried 2000 paper berry-boxes, and I like them so well that I shall never buy any more wooden berry-boxes. These boxes are made by Mullen Bros., of St. Joseph, Mich., and cost only $2.25 per thousand, while good wooden boxes in the flat cost $3.00 to $3.50 per 1000. The paper boxes come all made up, nested, so in reality the paper boxes are only half as expensive, as it is quite a job to nail up wooden berry-boxes. These paper boxes are coated with paraffine wax, and can be left out in the rain without serious damage. I think the paper from which the boxes are made is coated on both sides by some roller process.

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* Replying to this point, Mr. Bigelow adds:

"This point is weak. The noise is made *after* the clustering, in my experience, when the swarm has refused to go into the hive or to remain."

Now, Mr. Editor and manufacturer, why can't you invent a paper section box? You know paper is cheap—not only so, but it can be prepared in any color, of any thickness, and any degree of hardness, from soft as velvet to hard as flint; and by the use of paraffine they ought to be easily made so that the bees won't use them for chewing purposes.

I hope it is only a question of time till paper can be utilized satisfactorily as section boxes, and be as good as and possibly better than the one-piece wood section box.

HOFFMAN FRAMES.

I find the Hoffman self-spacing frame perfectly satisfactory when you get your combs nice and straight so you can take out and put in other combs, and then squeeze them tight each time you go through a hive; but if you are careless to begin with, and get them built too thick, then you can't shove them up close to each other, as they would crush the bees; but if you get well-made combs to start with, and always shove them up tight, using the dummy, nobody can help liking them; not only so, but they can be handled faster than loose hanging frames. I have 40 colonies on such frames, and others on loose hanging frames; but I always prefer to handle the former if they have been kept as they should have been. I have a few hives where the combs were built on strips in which they were not built straight, and they have crowded out the dummy; but that was my fault, not that of the frame. I think others who don't like the Hoffman frame could find mostly that the fault is in themselves in not getting combs built properly.

DOUBLE BROOD-CHAMBERS.

However, I am using several hives in which two Ideal supers of eight frames each are used on the brood-chamber, and I like them so well that I shall put my increase in such hives. For the last two winters I have not lost a single colony in such a hive, while I lost several in other hives; and I think the space between the two sets of frames is a big help in giving opportunity for the bees to shift their position from empty to full combs in cold weather. Out of 74 colonies, 18 are in such hives. I use the Ideal sections, and in that way the whole hive is composed of supers; and in case of winter loss each colony would contain 16 nice extracting-combs. I produce both comb and extracted. I can also use sections and extracting-combs in the same super, as per the Townsend plan, providing extracting-combs are white and clean.

White clover is all gone, and the weather has been too cool for comb honey; but I shall have a fair crop of extracted and about one-half or two-thirds of a crop of comb. Sweet clover and catnip are in bloom; and as weather is favorable the bees are storing fairly well, and also drawing new comb; in fact, catnip and sweet clover are doing better than I have ever seen them do before. Sweet clover is quite abundant this year, and so is catnip. The honey coming in from these two plants is always of very fine flavor; in fact, I have always found that, the more abundant catnip is, the finer the honey, every time. I have no faith in the idea that catnip honey is of bad flavor. We have lots of it here, and some of it goes into the supers nearly every year; but what per cent, I don't know; but there is at times enough to give off a scent of catnip when it is warm and being extracted, and the flavor is very good.

Williamsfield, Ill.

[The comparative cost of berry-boxes of paper at $2.25 per 1000 and wooden ones at $3.00 to $3.50 brings up the question whether it might not be possible to make honey-sections of paper. But a berry-box is not required to meet the exacting conditions of a section. The former may be more or less flexible, and not at all interfere with the carriage of the berries. We already have in our office a paper section box; but the cost of it, we find, would be consideraly more than of one made of wood; and, besides, it does not look as neat nor as durable. You will find an illustration and description of sections made of strawboard in our issue for May 1, p. 548. This material, provided it could be made neat enough, would possibly be cheap enough for a honey-section. But strawboard is vastly more difficult to cut than wood of the same thickness.

The wooden boxes permit of being sent in the "knock-down," or in the "flat," as we say. A paper box that would fold over at the corners would be a somewhat flimsy affair. The difficulties in the way of a section box made of any other material than wood seem almost insurmountable, yet we shall be on the alert to discover any new substance; and you may rest assured that, if something can be had to produce a box as good as those now sold, at a less price, we will announce the fact to the bee-keeping public.

Your experience with Hoffman frames, when you find they will handle faster than the ordinary loose hanging frames, is quite in line with our own experience and that of hundreds of others. Why there are some who find them difficult to handle I can not explain unless the frames are not properly nailed together, not properly made in the first place, or not properly spaced after they get into the hives. Nearly every instance of dissatisfaction might be accounted for on one or possibly all of the causes combined. Of course, all self-spacing frames must be spaced close together. There is a use and an abuse of any good thing.

With regard to double brood-chambers, I

have always had a friendly leaning toward them; and I am not sure but an Ideal super with Hoffman frames, V edge, the wide part of the end-bar running clear down full depth, would make an "ideal" combination in fact as well as in name. I believe the time will come when many of our experts will be using divisible brood-chambers. There is no getting around it, they have some desirable features that can not be obtained in a standard deep brood-nest. A Hoffman frame with the end-bar full depth for a brood-nest no deeper than would take a 4×5 section could be used very satisfactorily, at the same time affording all the advantages of full-closed-end frames, without some of their disadvantages. Then another very important point, the super and brood-nest would be one and the same. Narrow boards always cost less than wide ones, per square foot; and as lumber becomes more scarce, bee-keepers may be compelled to use hives taking narrow lumber.

I will not attempt to enumerate all the advantages of a shallow brood-nest; but I can not forbear mentioning one more. Brushed or shaken swarming is now coming to be common practice among advanced bee-keepers. The shallow brood-nest, as Mr. Heddon so clearly explained years ago, offers exceptional facilities for getting all the bees off the combs without touching a single comb.

This is an interesting field for discussion, and our columns are open for further consideration to those who have used practically this combination, and there are many who are using it, as we know from our sales record. It goes without saying, that a shallow brood-nest should have a spaced or fixed frame.—Ed.]

E. W. ALEXANDER'S METHOD OF ARTIFICIAL INCREASE.

How to Succeed Without Hunting for the Queen.

BY J. M. ROPER.

I have been reading about the various methods of artificial increase in bee culture, especially those of Mr. H. G. Sibbald and Mr. E. W. Alexander; and after weighing both in the balance I consider the method of the latter a most admirable one, and far ahead of that of the former.

I am only a young bee-keeper; but I enter the profession with a determination to know all I can of the science (for bee-keeping is a science), and to succeed if possible.

In applying artificial increase in my apiary I found, as I still find, that the ordinary method of making nucleus colonies with one, two, or three frames of brood and bees a rather tardy one, requiring a good deal of time, and sometimes much trouble, before these small colonies become self-dependent.

Before reading of Mr. Alexander's method the subject suggested itself to me that, instead of forming nuclei in the ordinary way, I might form them in connection with the brood nest or chamber, in the form of a super. The method I adopted and still follow is this: Going to the colony from which I wish to form my nucleus I divide it into two equal parts, adding frames with starters of foundation to each half of the divided colony. I then place the new colony, or nucleus, on top of the old colony, minus the queen-excluding honey-board, thus allowing the queen free access to both colonies. I allow them to remain in that condition for ten days or two weeks, after which I separate them without paying any attention to the location of the queen. In two or three days the appearance of queen-cells reveals the queenless colony. If I have a queen available I then introduce her or give a ripe queen-cell, if there is one, and then destroy all the newly built cells.

By this method I find that my new colonies (being formed not only with bees and brood but also with larvæ and eggs) work up very quickly, and in about four weeks are quite able to give off another colony, while the original colony, if it has the queen, is able to do so in less time.

The difference between this plan and that of Mr. Alexander seems to be the seeking-out of the queen and putting her in the new colony, and the intervention of the queen-excluding honey-board.

With regard to Mr. W. H. Crawford's suggestion, page 606, of giving a ripe queen-cell or virgin queen to the queenless colony while on top of the excluder, the question arises, "Would it be workable?" The colonies being practically one, and the bees, minus the queen, having access to the upper and lower stories, and having intercourse with the queen below, would they be likely to tolerate another queen or a queen-cell? If, however, this could be carried out successfully it would add greatly to this method, and the upper story could have an entrance in the ordinary place, turned in the direction opposite from that of the brood-nest by which the young queen could find an exit for fertilization, rather than go through an "auger-hole."

St. Margaret's Bay, Jamaica, June 21.

SWARMING UNDER CONTROL.

Better to Keep Down Increase than to Try to Prevent Swarming.

BY J. W. SMITH.

I have read with interest the articles that have appeared in Gleanings on keeping bees from swarming; but during the last fifteen years I have tried nearly every conceivable method, such as Dr. Gandy recommended, the Townsend method, and methods of my own. After all, it is my opinion and experience that, if bees want to swarm, they will do it, even if I would combine all the methods known against them. No doubt many others keep down increase the same as I do. In the first place, all of my queens are clipped early in the spring, and some colonies are run for comb honey and some for extracted. Several colonies swarmed this season that had sixteen L. frames full of comb above them, and did not store, previous to their swarming, any honey above their brood-nest. Of course, they returned to their hive for lack of a flying queen, and then I swarmed them artificially, giving eight empty frames in the brood-nest, and eight to sixteen above the brood-nest, using a queen-excluder. The brood is placed in a new location with but few bees, and after that the brood from each hive that is swarmed is placed underneath the first until I have a stack of five. After the brood is all capped the upper stories can be removed and placed over any other hive that is being run for extracted honey, and other bodies of brood can be placed under the first hive, where I place all brood from swarming colonies.

After the swarming fever is well over I put a queen-excluder in this brood colony, confining the new queen to the lower story, and am always very careful that no unsealed brood is above the brood-nest. Of course, this makes a powerful hive, and in a very short time they will fill 24 to 32 frames full of honey for extracting purposes. As above stated, I always wait until the swarming is over before I confine the queen to the lower story in this new colony; and when brood is placed under, all queen-cells are cut down from such brood-frames; and usually I take an upper story off and give to another hive, as I always record the time when each body of brood was placed. In this way there is always a certainty as to the condition of the brood, whether or not it is past the stage when bees could raise a queen from it.

The colonies that are run for comb honey nearly always swarm before they go above, even on "baited" supers. After they return they are given the "shook method" and placed on eight frames with just starters in wired frames; after two days sections are given them unless I give them one comb below; then sections are given them at once, and the queen won't bother the sections above.

You see, by my method I can keep down the increase of colonies to a great extent; but to keep down swarming is beyond me, and I think most of the bee-keepers are in the same boat; but confining strong colonies to sections greatly encourages the desire to swarm.

Dayton, Ohio, July 6.

[Hiving on an empty brood-nest or starters is getting to be more and more the orthodox practice among progressive bee-men. The plan described above, while not new, I believe to be excellent. Usually the two or three story extracting colonies will not swarm, and I am surprised that our correspondent should have swarming to the extent indicated.—Ed.]

H. R. BOARDMAN.

The Man Who Has the Reputation of Wintering Indoors without Loss; an Interview with One of the Brainiest Bee-keepers in all Beedom; Essential Factors in Cellar or Repository Wintering.

BY E. R. ROOT.

Just about 25 years ago wintering was the all-absorbing unsolved problem. No one really seemed to be master of the situation, and in the meantime bees were lost and hopes blasted. So great were the losses that this journal had, and maintained for a time, a department entitled "Blasted Hopes." Various causes were assigned for the loss. One was, too much pollen in the combs; and this gave rise to a long-drawn-out discussion on the pollen theory. Another was honey-dew; and still another, dark fall honey. As a matter of fact we now know that none of these were the real cause.

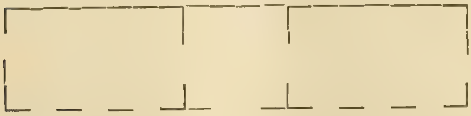
In the winter of 1881 and spring of 1882, when three-fourths of all the bees in the Northern States were lost, and the remnant were in weak condition, the situation came almost to a crisis. Many were going out of the business. Along about this time there loomed up on the apicultural horizon a man who "wintered bees without loss." It was none other than the subject of this sketch, of East Townsend, O., one of the brainiest bee-keepers in all beedom. Winter after winter he put all his bees in his upground repository and in his outyard bee-cellar, and in the following spring he would bring out the same number he put in, all in good healthy condition. This journal had the honor of giving a picture of the man away back in 1883—just 22 years ago. While his success up to that time had been phenomenal, he has during these years continued to winter his bees, except one winter when he tried an experiment outdoors, the results of which were far from satisfactory. Again, in 1889 Gleanings gave a picture of the man, of his bee-cellar, and told me the secrets of his success.

As wintering indoors is being revived again I decided this summer to take an automobile trip to Mr. H. R. Boardman and to H. G. Quirin, the queen-breeder, of Parkertown, a little further on.

In the latter part of July my son and I presented ourselves at the residence of Mr. Boardman. We halted the machine under a big evergreen, where, whom should we meet but the same Mr. Boardman, looking scarcely a day older, even though over 20 years had elapsed since I had first seen him. Notwithstanding he is past, by two years, the allotted age of threescore and ten, he was active and alert, and his enthusiasm over bee problems seemed as warm as ever. Feeling that I had before me a master of the science of indoor wintering, if not the best-posted man on the subject in the world, I fired questions at him at a rapid clip. In all the twenty and more years his methods have scarcely changed except that he attaches more importance to ventilation, dryness, and uniform temperature—or rather, perhaps, to put it more correctly, he is more convinced than ever that these are essential factors in good wintering.

THE SECRETS OF SUCCESS FOR INDOOR WINTERING.

We went over to the repository where had been done such excellent work. Here was a building 12×50 feet, the walls 14 inches thick, packed with sawdust, I think. It was divided off into three compartments, as shown by the diagram sketched below. As the seasons had been so poor of late he had reduced the number of his colonies so that he was wintering all his bees in one compartment on the south end. I said he scarcely changed his method; but still he has changed it slightly, and this is in regard to ventilation. He puts 100 or more colonies in one of the end rooms. The middle room and the other end room are left without bees. He found at times it was detrimental to give fresh air to bees directly from outdoors. Ordinarily the air in the other two rooms, when the door of the bee-room is opened, is sufficient to freshen up the air where the bees are. There are times, however, when he lets fresh air into the two outer rooms; then when it warms up to the temperature of the repository he lets it into the bee-room.



The amount of ventilation given depends largely on the time of the year, more being given in late winter and early spring than in the fall or mid-winter. In the old way he used to have the bees divided in the two end rooms, letting the air come into the middle compartment, and from there dispersing into the other two rooms; but by putting all the bees in one place he is able to take in a larger amount of fresh air, letting it equalize with the temperature of the building; then it is given to the bees so that it does not greatly disturb them. The cellar has a cement bottom; and as the repository is entirely above ground it is always dry inside, or practically so. While he has a small stove in the middle compartment, he does not use it now as he formerly did, to warm up the air in very cold weather. He puts enough bees into the end room so the temperature does not drop to a point where it will do any harm.

When Mr. Boardman was asked whether an underground room or cellar might not have a more uniform temperature, he admitted that it might; but dryness, so essential, would thus be sacrificed to some extent. He did not know why bees should not have just as pure and dry an atmosphere as human beings or any other warm-blooded animal. For that reason he prefers a building above ground. His hives are piled up one above another, five inches apart, as explained in our A B C of Bee Culture, without bottoms, in such a way that the top hive will stand on the two hives below.

Mr. Boardman volunteered the information that the conditions that we had in our machine-shop cellar, by which fresh air was admitted from an outer and larger room with dry floors into the inner bee-room, was ideal. When I asked him why we lost so heavily at our outyard bee-cellars, he explained that we probably had dampness and variation of temperature, which was true. He thought those two factors were sufficient to account for the loss. Eliminate the dampness and control the temperature with a reasonable amount of ventilation, and the loss should be no heavier at our outyard cellars than in the one under the machine-shop. And I would say in this connection that our machine-shop cellar is practically all above ground except one end that is partly submerged. In conclusion, Mr. Boardman expressed himself most decidedly that dryness, fresh air that has been equalized to the temperature of the building, and reasonably uniform temperature, were factors in good wintering. Any cellar reeking with dampness, or with standing water, or any place that is unfit for the accommodation of human beings, is an unfit place for bees. So much for the cellar-wintering problem.

THE BOARDMAN SOLAR WAX-EXTRACTOR.

While Mr. Boardman is a past master in the wintering art, he is scarcely less an authority on a good many other subjects relating to bees. He is the inventor of the large Boardman solar wax-extractor, a machine of which he makes a great deal of use in melting up combs, evaporating honey, etc. I told our friend I was afraid he was losing a good deal of good wax in his slumgum, which, he stated, made excellent material for starting fires. I have sent him a wax-press, requesting him to put some of the slumgum through it. Later he will give the result of his experiments. But we have not been able to do any thing like a clean job with the solar alone. It will handle all kinds of scraps of combs, cappings, and the like, in which there are no cocoons from brood-rearing. But our slumgum from brood-combs from the solar wax-extractor has usually contained a large per cent of wax.

Many years ago our friend tested baby nuclei, and made a success of them, so that we may almost consider him the pioneer in this.

BOARDMAN ON OUTDOOR FEEDING.

Our conversation drifted to outdoor feeding. Here, again, he had had large experience covering many years. Where one *knows* the source of his combs, and feels sure they are free from foul brood and other diseases, and desires to have them cleaned up, he felt sure there was no better way than to expose them right outdoors where bees can get at them. He showed me nails (on which he hangs these combs) driven in the sides of the buildings surrounding the bee-yard. Notwithstanding he has at times exposed a hundred or so such combs, and the bees pounced on them in great numbers, he has never experienced any bad results. But he says outdoor feeding must not be practiced when the bees are on the verge of starvation — a fact which we had recently pounded into us by some experience that we will remember for a time.

Another thing, our friend has found that the bees should not be given a mere taste, but a lot of feed at one time; then they must be allowed to clean up the syrup (or honey in combs) *entirely* until they are satisfied that it is all gone. If the combs are taken away from them when the job is only half finished the bees will be liable to pounce on weak colonies in the yard.

BOARDMAN'S ENTRANCE FEEDER.

Mr. Boardman is still using his feeder for in-hive feeding where he desires to favor one colony above another; for it will be remembered that he is the man who brought out the Boardman entrance feeder — a very excellent feeder when used carefully and in a proper manner.

KEEPING HONEY LIQUID.

Our friend has a method of keeping honey liquid almost indefinitely. He has not yet made it public, and whether he will or not will depend on future developments. He does quite a large business in bottling extracted honey, and he has no difficulty in keeping that honey in liquid condition at all the retail stores until it is sold. Of course, I did not ask him, even for my own private information, what it was; but he said this much: He puts absolutely nothing in the honey by way of preserving it. The plan is only a *method of treatment* of the honey itself.

BOARDMAN THE MAN.

We have already given a picture of Mr. Boardman, of his bee-cellar, and bee-yard. By referring to the A B C book, under the head of "Wintering," the reader will find some of these reproduced; but for the purpose of this article I took two snapshots, the results of which are given herewith. I had asked Mr. Boardman to sit out on his porch with his little girl—to assume his natural easy position while working out some of his new schemes. I pressed the bulb, and the result is before you.

Even a casual acquaintance would reveal the fact that here is a man of no ordinary ability. He impresses one as being a deep student of nature, a conservative and a careful thinker; and, while he is modest, yet one can not help being impressed with his scholarly manner, notwithstanding that he protests he has never had any extended school training.

Another view shows a cool retreat just off the porch of the house, looking over toward the bee-yard and the winter repository. The hammock is delightfully inviting. The shade, the soft breezes, and the merry hum of the bees all combine to suggest quiet rest. If you desire to know more about this man you are referred to the biographical sketch in the back part of our A B C of Bee Culture.

OUTDOOR WINTERING OF BEES.

Hives, if Packed Warm Enough, will Winter Bees as Well as a Cellar.

BY E. N. WOODWARD.

The bee-keeper who has kept himself within the safe beaten paths of his own experience, and who has avoided the many new forms and fancies that spring up and seem to flourish for a day, may congratulate himself that he is not thrown off his base or led into temporary disaster by following some line of manipulation or some plan of management that is not practical or progressive.

I would not discourage experiment nor lay a straw in the way of progress. Thought, theory, experiment, each is a key that unlocks the door to hidden truth. We may fall into error at times, but the success attained is the reward of investigation and experience; and this leads me to say, in regard to wintering bees in this northern climate, that a plan or a practice that has proved itself true for a period of years without a failure is a safe plan to follow for the one making the trial, if not for others.

In this locality the temperature often goes down from zero to 20 below; and one great reason, and perhaps the chief reason, why some have failed in outdoor wintering of bees is that they are not packed warm. I formerly wintered my bees in the cellar, and lost them in the spring by the score. I then tried an outside repository with about the same percentage of loss. I have also packed them in chaff, and still lost a large number; but for the past several years I have lost no bees of any account.

I now place them in winter cases, three hives in a case. These cases are made of good lumber, and papered with thick building-paper all around the sides and bottom. I placed 91 colonies in these winter boxes last fall, and every one of them is in fine condition except one in a single box that I overlooked in packing. Since I have adopted my present plan I have not been troubled with spring dwindling. What I wish to emphasize in this connection is, that bees must be packed warm, and here is where the secret lies.

The chaff hives made by the different firms are all right provided there is sufficient packing of the right material on the top. My argument is that they must be packed so warm that the moisture will not condense —so warm that the bees can move to any part of the hive without any danger of being caught in a "blizzard;" so warm that they just laugh when they hear the winds blow with the temperature going down below zero. But some will say, "Pack your bees so very close, and there will be no upward ventilation, and the hives will become damp, and the combs will become moldy, and the bees diseased; and, as a result, they will come out in bad condition in the spring."

It occurs to me that this bad state of things which some seem to fear is not the result of close packing and warm hives, but the result of loose packing, too much cold, and *too much* upward ventilation. Absorbents are all right if warm. However, the only absorbent that I use is the propolized canvas, flat on the frames, and then two thicknesses of heavy building-paper, and then a large chaff cushion, loose chaff or forest leaves, as the case may be, then the three hive-covers on top with the tight cover to the winter box, which completes the job.

With my present method, if I wish to examine any bees in the middle of the winter or any other time I find them clustered between the frames dry and warm and contented, and they smilingly look up into my face and seem to thank me for my extra care in providing for their wants. If the weather is suitable for them to take a winter flight, they are ready to improve it. But allow me to say that they do not especially need it. I doubt very much whether, packed this way or not, they consume any more food than when placed in the cellar.

While the common chaff hive is good enough if warmly packed, I prefer my winter cases, for I can make them warmer, and they warm up much better in the spring and hold the same temperature in spite of the changes of weather. It has been argued that so much bulk of packing is detrimental; that the rays of the sun can not penetrate; that the hives remain cold, and that brood-rearing is retarded. I think this is somewhat imaginary, and I am quite sure that, with my way of packing, it is contrary to my experience. The continuous warmth of three colonies stored up and held under tight covers is far more potent than the fickle rays of the sun; and the real fact is that the whole body of chaff is warmed and remains so.

The most of my hives are ⅞ inch deeper than the standard L., making the frame just 10 inches from top to bottom. I think it is true that this deeper hive will generate more heat than a more shallow one. I run my bees for comb honey, and I like this deeper frame. It gives me more depth of brood and more bees, and it is bees that make honey.

The whole surplus energy and warmth and odor from this deeper and more populous hive flows up into the super above, warming the sections and the foundation, so that I have very little trouble in forcing bees into the sections. There is such an upward push that they *must* go above.

My first bee-keeping was with the old King hive, forty years ago. The frames were 12 inches deep. The surplus boxes for comb honey were 4 inches in depth, covering the whole top of the hive with glass in each end, with two or more auger-holes in top and bottom for bees to enter, and without comb foundation or sections or any of the modern helps. We have often secured over 100 lbs. of comb honey per colony, spring count. At that time we knew nothing of the many devices to control swarming. Some of these plans are practical and of great value; but any plan that will interfere with the natural working condition of the hive is harmful.

One thing is sure—that bees in good working order, left to their own sweet choice, will swarm. We may argue the question with them or try to persuade them to postpone the job with our non-swarming devices, but for all this convincing argument—

> They have the same opinion still,
> For swarm they must and swarm they will.

Well, I like to see them swarm—it is a sign of prosperity. They are satisfied. They think they have started in house-keeping anew, and they work all the better. If we manage them right we shall get just as much surplus honey with no increase, unless we desire it.

Hillsdale, Mich., March 11.

[What our correspondent has to say on the subject is, in the main, orthodox according to our experience. I would add, however, that sealed covers are better than absorbents, as a rule. When there is only a porous covering between the packing-material and the bees, the former is liable to become wet, and, in a very cold spell, freeze. It is then but little better than a cake of ice. We found that our bees seemed to average better with a thin board cover which they may seal down. Enamel cloth, or an old carpet thickly coated with propolis, is almost as good. Our correspondent uses practically a sealed cover, and therein is a part of the secret of his success. When he puts an abundance of packing-material all around, and especially on top, he supplies another important factor in the problem. But there is one thing upon which he is silent. He does not say any thing about restricting the size of the entrance. The smaller the entrance the better, providing it is always kept clear of dead bees. An entrance 4 in. wide and ¼ deep we have found to be quite sufficient. This will usually keep reasonably clear. I should prefer an entrance only one inch wide, but there is a liability that the bees will clog it up. Hay or straw piled over the entrance during the coldest weather is all right providing the snow does not melt and then freeze up, sealing the entrance. That is the experience we had late last spring; and such colonies did not do as well as those that had no straw at all.

Any chaff hive sold by manufacturers can be made to winter bees except where the mercury remains below zero for any length of time; but the looser the packing-material the more of it should be used. We use a tray five inches deep filled with planer-shavings. These lie directly on top of a tin super-cover which the bees have hermetically sealed with propolis. A cover telescopes over the whole, making the hive warm and tight.—Ed.]

THE FINDING OF QUEEN-CELLS.

Something about Clipping Queens.

BY F. GREINER.

In your comments to the article of Mr. F. H. Cyrenius, on pages 774, 775, you say that the described method of finding queen-cells is practicable only with double-deckers. It is, perhaps, true that more queen-cells are started in the center of the brood-nest of the double-deckers than at the lower edges of combs in single-story brood-nests; but I wish to say that I have been quite successful in spotting all such colonies as showed signs of swarming the past season in my two outyards by the Cyrenius method, although almost all my colonies were on one set of combs and deep frames at that. My frames are 11 inches deep, with bottom-bars only $\frac{1}{2}$ to $\frac{3}{4}$ inch in width. Not all queen-cells are started at the lower edge of the combs, but nearly always a sufficient number of them to inform us of the intentions of a colony. If colonies always waited till the queen-cells were sealed before swarming I would have made no misses. But this is not always so, and so there will be some swarming in the outyards.

No extensive bee-keeper can nowadays afford *not to clip queens;* and when they are clipped they may get lost in the several attempts made to swarm; but the bees are saved, and we find out the state of things when we make the next examination. There will then be a certain uncertainty as to

FRIEDMANN GREINER IN THE ACT OF CLIPPING A QUEEN WHILE ON THE COMB.

whether a queen is present or not, unless we find the queen. If we do not find her she may be there even then, or she may not. In this case we may not know just what is best to do. If we make a brushed swarm, and she has been lost, the labor is lost and we make a failure. By placing an entrance-guard over the hive, and shaking all bees in front of the hive, we find the queen if one is present. If we find none we may conclude the queen is lost, and we shall do better to give back the brood-combs with a ripe cell if we have one. All other cells must be cut. This is not absolutely a safe way as long as young brood is present from which other cells may be started; but in handling many colonies we have to take some of these risks.

I am not sure that I have before mentioned that, in clipping queens, I very seldom touch one with my fingers. I find that a curved pair of scissors does the work very nicely. With it I clip the queens as they move about among the bees on the combs. When doing this I usually rest one corner of the frame on the hive, as shown in the photo,

Naples, N. Y.

BOARDMAN'S SHADY RETREAT, WITH THE BEE-YARD AND WINTER REPOSITORY IN THE BACKGROUND. SEE PAGE 961.

THE SWARTHMORE QUEEN-REARING SYSTEM.

A Lard-press for a Wax-extractor. See p. 938.

BY PERCY ORTON.

I am sending you some photos. If you can use them, do so. No. 1 is a hive-super, and frame of sealed Swarthmore cups, of which there are eight. The top-bar is $\frac{3}{8}$ inch thick; if thicker the bees will attach the cups to the under side of the top-bar, and when you wish to remove them you will twist off the cell. I had to trim off the miniature combs on the cells before removing. I consider the Swarthmore cups the most practical of any used in queen-rearing, because I can remove them for examination, without the use of a smoker, and with bare hands. I got 19 fine cells built from 20 that were grafted — 9 with larvæ and royal jelly, and 10 with larvæ—into dry cups, but I had to make three grafts to get the latter during 38 hours. I got accepted first, 2; second, 4; third, 4; and they were larger cells than those in which royal jelly was first used.

Photo No. 2 is my wax-press. It is a $4.50 lard-press. The perforated steel and shield on the left is what comes with it for pressing lard. The wooden iron-bound tub with skeleton bottom and follower, all slatted, are what I made for pressing out the wax. A burlap is spread over and pushed down into the tub. The hot water and wax are poured from the old brass kettle into it. Tin sap-buckets are used to catch the wax and water as they come from the press. They are beveled, and the cake of wax comes out readily. One of them stands in front of the press; also a larger cake of wax and some 3-oz. ones. They were molded into egg-dishes like the one in front of the wax, and sold from house to house for 10 cts. each. Almost every lady bought one to lubricate the flat irons. As I had such a small amount of wax it would not pay me to send it away to market.

Before closing I wish to say Mr. E. R. Root is right when he says, "You can't get over 50 per cent until you use a press for your wax." And I want to say that, when you get a press, buy a German. They are neater, and can be used on the kitchen stove; they make a fine uncapping-can or honey-press, and will be the most satisfactory in the end. I will trade my outfit for one if I ever get a chance.

Northampton, N. Y., Aug. 9.

[Then we understand that you get far better results by using a little royal jelly, and each cell grafted, than to attempt to get along without. That has been our experience, although I am satisfied Swarthmore succeeds in grafting without the royal jelly.

Before we put out the German wax-press we tried a great number of different styles;

but after a long series of experiments we came to the conclusion that, in the hands of the average person at least, wax squeezed out in the open air, even though the refuse was taken immediately out of boiling water, was liable to chill, with the result that the cheese would not give up all the wax in it. But when the cheese is confined in hot water or hot steam during the operation of squeezing, then every particle of wax may be secured. While an open-air press can be made a good deal cheaper, and while the lard-press, such as is here shown, is far better than no press at all, yet the loss through the chilling of the cheese during the process of squeezing is enough in a very short time to pay the difference in the cost of an inclosed press. The German bee-keepers have been over this ground very thoroughly—many years, in fact, before the American bee-keepers came to adopt pressure in rendering wax. Indeed, our press, with some slight modifications, is modeled after the German presses so successfully used on the other side of the water—hence the name.—ED.]

NON-SWARMING A HONEY-GETTER.

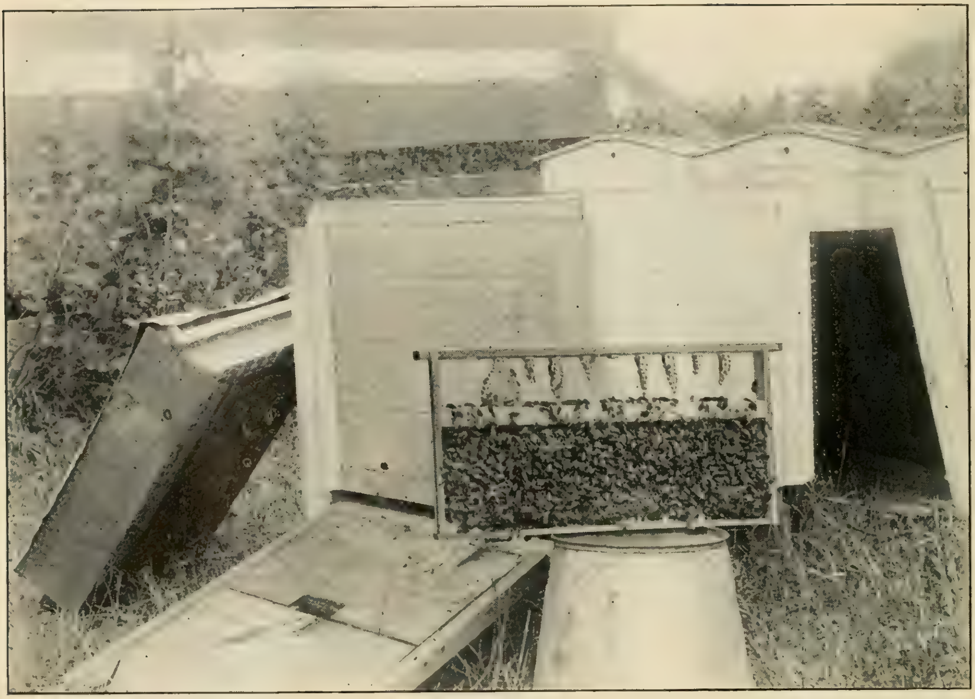
Two Full Colonies Used to Supplement the Working Force.

BY DR. J. W. GUYTON.

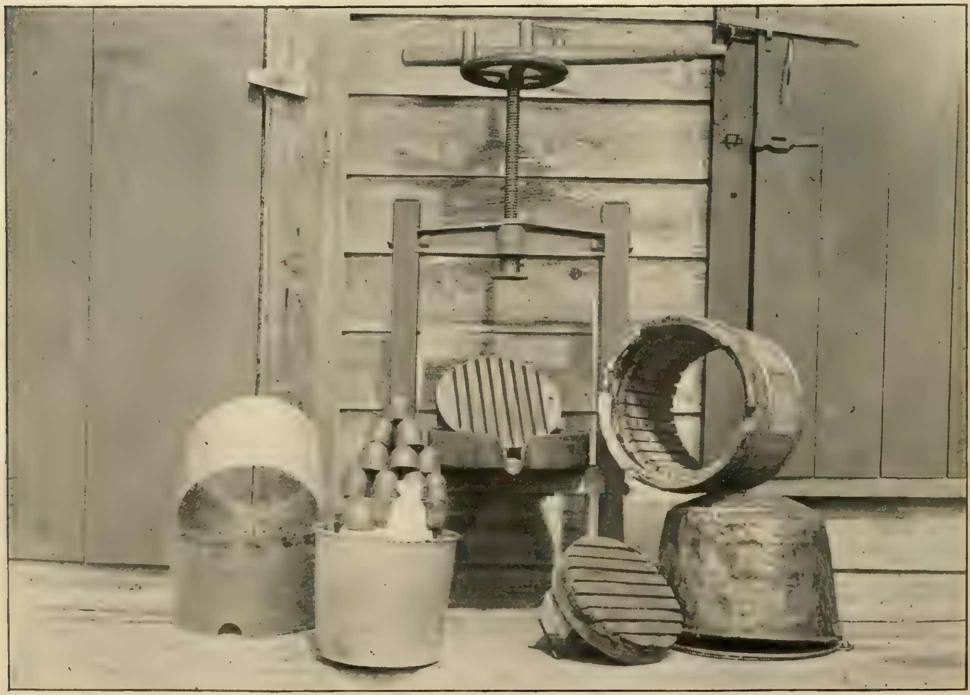
As the editor calls for reports on the non-swarming plan I will try to accommodate him with my experiment.

To begin with, I will designate my working plan by numbering my working hives 1,

H. R. BOARDMAN AND LITTLE DAUGHTER AT HOME. SEE PAGE 961.



QUEEN-CELLS A LA SWARTHMORE. PHOTO BY PERCY ORTON, NORTHAMPTON, N. Y. SEE P. 966.



A $4.50 LARD-PRESS CONVERTED INTO A WAX-PRESS. SEE P. 966.

2, 3, and the stands as A, B, C. Nos. 1 and 3 are hives that are preparing to issue a swarm. I found upon examination that No. 1 had queen-cells started, although not so populous as No. 3. I took an empty hive (eight frames all of them) with foundation starters, and set it on stand B. I also took a comb of brood and bees with a queen-cell from No. 1, and set it in the center of hive No. 2, on stand B. A little before sundown I set No. 1 on top of No. 2, with the entrance turned in the opposite direction. By removing the hive at this time of day I did not get the full force of workers in No. 2, as might be expected, but what I did catch were ready for work the next morning, seemingly satisfied with the change. I will say that I had previously brought these two colonies of bees close together by moving each every few days until I had them within about three feet of each other. The bees were not molested so very much after the third day. On the fifth day I set No. 1 back on its old stand, and put No. 3 on top of a super on No. 2, with the entrance turned the same way as No. 2. Most of the bees entered No. 2. I had also raised the hive of No. 2 at the rear, so the bees from No. 1 could more easily find their way in.

After another five days I set No. 1 on stand C, and five days later I put No. 3 on stand A, and in five days more I put No. 1 on top of No. 2 again. All of these changes were made about sundown. This was done to keep so many bees from entering at once. The returning field bees, loaded with nectar and pollen, are always accepted, and will not ball the queen when they are in the minority, as they will always be when manipulated at or just before sunset. They will also acquire the scent of the colony during the night, and will go to work the next morning as though they had kept house with their mother the previous night.

The honey-flow (horsemint) was light, but this worked very well with those two colonies. The brood-combs were all well built, and the 24 sections nearly all well filled. This was so much better than any other three colonies that did not issue a swarm that I decided it a success.

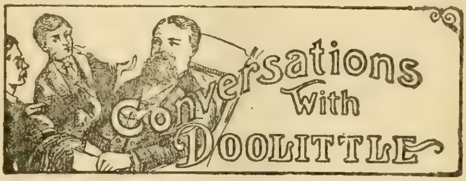
The two old colonies did not issue a swarm. I suppose No. 1 must have destroyed their queen-cells and given up the idea of swarming. This is reasonable, as they were losing their field forces every five days. They could only think a dearth of honey was on hand, and not bees enough left to swarm out.

I believe the above plan infinitely superior to the brush-swarm plan, as it saves handling combs so much; besides, the brush-shook plan entails numerous stings at times, besides almost depopulating the parent colonies. With eight-frame hives I think my plan will work more satisfactorily; but with a ten-frame hive and a very populous colony the Sibbald plan may work all right.

To introduce a prolific queen to the new-made colony I fear would take up too much time with the bees in rearing brood to get the best results in the super. However, this would work satisfactorily in some localities where the honey-flow lasts all day and for a few weeks. In fact, bees will do well in any locality under almost any system of management where there is a continuous flow of nectar. As I understand the Sibbald idea he wants to curtail the swarming impulse and get honey instead.

In conclusion I will recommend to those who wish to try to keep two hives from issuing swarms to arrange your two nearest strong colonies in pairs about three feet apart. Bring them together gradually a few inches every three or four days. After the made swarm begins to hatch its own brood, and is equal to the other two in numbers, you need not exchange places any more, but, instead, put supers on the old colonies, and in a long honey-flow you may raise the super on the new hive and set a new one under it. I like the idea of putting shallow extracting combs at the sides of the sections. This I will try soon.

Levita, Texas.



CRATING HONEY.

"Get much honey this year, Doolittle?"

"Not an average crop of white honey. In fact, the season has been the poorest for some years all through this section, so far as I can find out. We may get some buckwheat honey, if the weather turns good soon, though the acreage is not up to the usual amount."

"I find that is about the case with the most of the bee-keepers in Central New York; at least I have heard of no yields above the average. I have a crop of about fifty pounds to the colony, spring count, and I came to have a little talk with you about how I shall put up this honey for market."

"You wish to know how I sort honey or grade it, I suppose. I use the X plan, putting XXX for fancy, XX for No. 1, and one X for the rest, unless quite poor."

"Yes, I have read what you have written regarding the using of X's in sorting honey, and it is not just that which I wish to know about. It is whether you put any thing but fancy in a crate. In other words, do you mix fancy and No. 1 in the same case?"

"No, I do not. Why do you ask this?"

"Because an old bee-keeper told me that I could not get any more for my fancy honey crated by itself than I could for the whole were I to crate fancy and No. 1 together. He says that, after the commission merchant has sold the fancy, he will sell the No. 1 at a less figure."

"That is just my experience, where both

fancy and No. 1 are shipped to the same commission house; but ship the fancy to one house and the No. 1 to another house, or to a different city, and No. 1 often sells for as much as fancy."

"Why should that be?"

"For the reason that most persons can not carry the difference between the two in the eye twenty feet, or when going from one building to another. What I mean is this: The average judge of comb honey, looking at XXX honey in one building, and then going two rods to another building and looking at XX or No. 1 honey, will, upon close questioning, tell you, when he gets through beating around the bush, that he sees very little difference between the two lots."

"That is a point I had not thought of; but I guess you are right, for I had some No. 1 honey crated in the house, and some fancy in the shop. I was praising that in the shop to my wife, and she said she did not see why I was making such a fuss about that shop honey, for that in the house looked just as good."

"That is just as I find it; and more—face one side of a crate with fancy honey and the other with No. 1, and ask the ordinary man which of the two sides is the nicer, and you will see him step first from one side to the other, then back again, then to the first side again, then back once more, when he will tell you he sees very little if any difference. But you place a crate of fancy and a crate of No. 1 honey side by side, or one on top of the other, and any ordinary person will tell you that the fancy looks the nicer."

"And I guess you are right again."

"Yes; and why the No. 1 does not sell as well as the fancy, where both are shipped to one commission house, is because the commission man sees the two side by side, and forms the opinion that No. 1 is not as good as the fancy, and so, after the fancy is sold, he tells his customers he has been selling fancy at 15 cents, but he has some on hand that is not quite as good, and he will take 13 for it. When he makes such an admission the purchaser takes advantage of it, so offers him 11 or 12 cents, and generally gets it at his own price."

"I see. Then you don't ship all your honey to the same party?"

"Not now. Years of experience taught me better than to ship both fancy and No. 1 to the same man; so I now ship the XXX to one party and the XX to another; and fifteen or twenty years of this has proven that, more often than otherwise, the XX brings fully as much as the XXX."

"Well, if such is the case why not put the No. 1 and fancy together, and face the crate with the fancy, as the old bee-keeper said was the best way?"

"I should hardly think that the best way, though I know that the bee-keepers of a quarter of a century ago did that way. Every case of honey should be so crated that it would give a fair representation from the outside of what the whole was."

"But do you not face at all?"

"When at a bee convention some years ago a certain man asked all those who put the poorest sections next the glass on the case to hold up their hands, but not a hand went up."

"I should not expect there would. How do you do?"

"After sorting my honey very carefully, seeing that no section of a lower grade is in a higher one, I take the number of sections of any special grade which a crate will hold to the cleaning-block, and, after cleaning one, I look at the two sides of that certain section, and then place the smoother side next the glass. But I never allow a single section of XX honey to go into a XXX crate, much less an X section."

"But suppose you were to put fancy and No. 1 honey in the same crate, as the old bee-keeper told me to do, how would you do it?"

"*I* would not do it."

"But suppose I did it, how should it be done?"

"The only way to do this, if you think *you* must do it, would be to put the half of the crate on one side with fancy honey and the half on the other side of No. 1."

"And if I did this, the ordinary commission man, or the one purchasing the honey, would not be likely to see any difference between the two sides, according to your experience in the past in having the average person look from side to side of the crate."

"Now, that is one way to get back at me. Allow me a question."

"Certainly."

"What would there be in the way of the commission man or the purchaser setting the No. 1 side of one crate and the fancy side of another toward him, or half a dozen of each, did you ship him that many?"

"I am off now. Good by."

Heads of Grain
from different fields

PARTICULARS WANTED CONCERNING THE SWARTHMORE OUTFITS; IDEAL SECTIONS USED FOR FRAMES IN BABY NUCLEI.

I should like to have full particulars regarding the Swarthmore outfit. Have you a book describing the outfit, telling what each part is for and how used? I do not understand them by name. I have one of your outfits, and like it very much. I am using the Ideal section, two in a box, for baby nuclei, and get every queen mated without any brood. I place the sections in half-depth wide frames spaced ¼ inch apart in super (no separators) placed on 12-frame L. hives. I get them filled easily with honey, and some brood if I should want it. They hold more honey than your little frames, which is my main reason for using them. One full section, one empty one, and ½ pint of bees, make up a perfect combination for mating queens. It makes a square box, or a little taller than square, which gives them comfort on cool nights, and I find them out as early on cool mornings as the standard-sized colonies.

You may say that the combs are too thick for brood-combs, and spaced too far apart (1¾ inch. from center to center when sections are spaced ¼ apart). It makes no difference in these little boxes, for the bees shave the combs down to the proper thickness for brood-combs, except that part which contains honey. This leaves a wide space between the combs, while the wood of the section nearly closes around them, hence more warmth.

I fasten the sections on the lid similar to those in your box; but instead of using staples I use little wire nails of the right size, driven through from the outside of the lid, and then bent over with pliers. I put two in the center of the cover to hold the section, and one at each end also, bent over so you can turn it to or from the section, which fastens or releases it. This works finely, and gives permanency in handling, which the staple does not give. Those who use sections can make their own little boxes to fit, and use their unfinished unsalable sections to mate queens, and thus save that which might be lost. SAM KING.

Raleigh, N. C., June 30.

[We can furnish Swarthmore's complete outfits, as well as the books for the same.—ED.]

IS AN EARLY-BLOOMING BASSWOOD-TREE A RARITY? AND IF SO, WOULD IT BE AN ACQUISITION?

I am sending you some basswood-blossoms which I picked from a perfectly healthy and thrifty tree this evening, July 25. I also enclose some seeds from another tree which grows about three blocks from the one which is in full bloom. This is to show the difference in the time of bloom of the two trees. All the basswoods, except this one, in this section, so far as I have observed, are entirely out of bloom, and have been for at least a week or ten days.

I should like to know if, in your opinion, this late-blooming tree would be worth propagation. I could probably receive the seeds this fall; and as I have had some experience in grafting and budding I think that, perhaps, I could get the real thing with grafts and buds.

The tree stands in my daughter's front yard, and I can see nothing in its environment which would tend to make it blossom later than other trees in its immediate neighborhood. My daughter and her husband say the tree has for the last three years (the time which they have lived in this place) been the subject of remark by themselves and neighbors on account of its leaving out so late in the spring, some thinking it must be dead.

I should be pleased to know if, in your opinion, it would be of special value to bee-keepers on account of its late blooming, and also if it would be possible to sell budded or grafted trees at a higher price than ordinary basswoods sell for. The tree is located in Albert Lea, Minn. G. W. PETRIE.

Fairmont, Minn.

[The case you refer to is not an unusual one. We have trees right in our own vicinity that will blossom some three weeks ahead of other trees. A good deal depends upon location, the age of the tree, the soil, and the watering, as to how early the tree will blossom. It is, nevertheless, a fact that some trees in the same location will bloom earlier than others.—ED.]

A CHEAP AND STRONG HIVE-STAND; IS AN OPEN SHED A GOOD PLACE TO WINTER BEES?

I give you plans of the hive-stands I use. They are better, I think, and easier to set than stakes. I use native black-oak boards for end-pieces one inch thick, 8 wide, by 15 long. The middle piece is about 6 in. wide by 15. These are nailed in this shape: **H**. This makes a good cheap stand. The two end-pieces fit under the entrance and back of the hive.

I have been a subscriber to GLEANINGS for some time, and find it quite a help to me. I wish some of the writers would give a little more on natural swarming and comb honey, and doubling small swarms. Last winter I built an open shed 100 feet long and put my bees under it after the first snow, but found I had made a mistake after I had lost about a third of my bees. I have about ten acres of white and ten of alsike clover, and find the alsike makes good hay as well as bee pasturage. R. L. WEBB.

Waverly, Mo.

[It is hardly probable that the shed was the direct cause of the death of your bees. If the back of the shed was closed up (as most of such bee-sheds are), and faced the direction of the prevailing winds, it would really be a protection. Last winter was a severe one for most localities, and the probabilities are that the *winter* and not the shed was responsible for the loss. The expense of a shed will generally buy a full set of winter cases or chaff hives, and there is no question but that either of the latter would be far superior for outdoor wintering.—ED.]

HOW MUCH HONEY DOES A COLONY OF BEES CONSUME IN ONE YEAR?

Adrian Getaz, p. 531, puts the amount at 200 to 250 lbs. Now set over against this the fact that Mr. Doolittle and others can keep a colony about five months—Dec. 1 to

May 1—on less than 10 lbs. of honey; and another fact, that any time when bees can fly, and no honey can be gathered, if fed daily half to $\frac{3}{4}$ lb. of honey reduced to the consistency of nectar, that colony so treated will thrive, will be stimulated in brood-raising, and will increase slightly in weight.

In feeding back freely, is there not a waste which can not be fairly charged to keeping bees alive, furnishing heat, secreting wax, or raising brood?

Winsted, Ct. O. S. REXFORD.

[There is much in what you have to say, and I believe you are right. I should like to hear further from Mr. Getaz.—ED.]

WETTING BEE-BRUSHES TO KEEP FROM BEING STUNG.

Extracting generally three or four weeks after the flow has ceased, and there being no honey coming in at that time, I got pretty well stung; but last year I found a simple remedy—just wet the bee-brush before using it. The bees are rolled off on the ground, and very few attempt to take wing. After getting started I carried a pail of water with me while brushing off the bees, and I did not get a tenth of the stings that I got before. GUSTAVE GROSS.

Dilly, Wis., July 19.

[Some bee-keepers regularly wet their bee-brushes when extracting. While it prevents stinging, it also keeps the brushes clean.—ED.]

WHAT MAKE OF BICYCLE TO GET.

What kind of bicycle would you advise a bee-keeper to get for hard service? What make? what grade? what weight? what gear? what kind of tire? what kind of brake, if any? What do you think of a coaster brake? I think a little article in GLEANINGS on these points would interest a good many bee-keepers. W. T. CARY.

Wakenda, Mo.

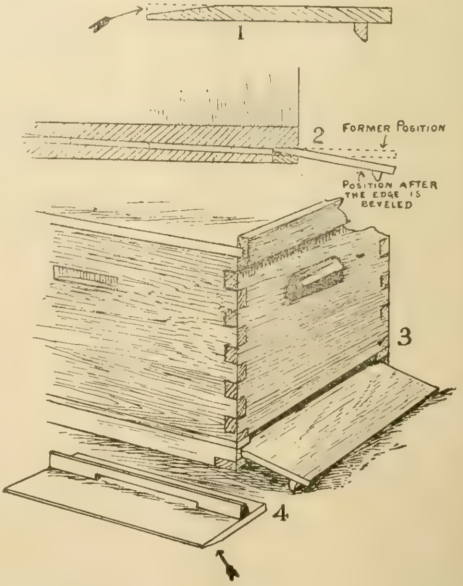
[Most of the bicycles put out by the Pope Mfg. Co., with head offices at Hartford, Ct., and Chicago, Ill., are high grade, capable of standing hard service. This company makes some medium grades that are very fair. The Crescent, made at Chicago, is perhaps the best of the medium-priced machines. Among the high grades I would recommend the Columbia, the Rambler, and the Cleveland. These cost all the way from $40 to $75. I would advise you to have nothing to do with a bevel-gear drive machine of any make. Our experience with them has been decidedly unsatisfactory. While the gears wear well, they easily get out of alignment, and then consume power enormously. Better get the cheaper chain model with coaster brakes, a device that enables one to stop pedaling while going down grades, thus saving strength as well as general wear. If the country is a little rolling, one can run almost half the time with the pedals still; and a high-grade bicycle, with slip gear and coaster brake, comes as near furnishing a sense of flying as any thing ever made to carry a human being.

While you can get $15, $16, and $25 machines, the parts are not as carefully nor as well made. Better pay a little more money if you desire to run outyards, and save your pocketbook in the end as well as your muscles.

We often wonder why bee-keepers do not use bicycles more in going to outyards. W. L. Coggshall's men make a very large use of them. Where one desires to see only a few colonies in an outyard for only a few minutes the bicycle is next to the automobile, and a good bit cheaper.—ED.]

AN IMPROVEMENT ON THE DANZENBAKER BOTTOM-BOARD.

Fully one-third or more of the bees that take flight from the bottom of frames capsize and strike on their backs. I made a bottom with the alighting-board slanting down from the inside bottom edge of the hive-board, and have never seen a bee strike on its back yet on this board except by collision with another bee. With the Danzenbaker reversible I set the bottom-board one inch back from the outside of the front of the hive. For full entrance I turn the cleat down and plane the edge intended to be the outer one on a bevel one inch back, and leave the edge $\frac{3}{16}$ thick; insert in grooves with beveled side up and it will give a good slant down as in the diagram.



GEO. HILDRETH.

[While some bees alight on their backs, the proportion in our experience is not nearly so great as you speak of.—ED.]

HEALTH NOTES

BY A. I. ROOT

WHAT SHALL WE DO WHEN WE DO NOT FEEL WELL?

Perhaps I had better put my heading to read like this: "What is the best thing for old people to do when they feel that their powers of mind and body are giving way?" Of course, we must expect to fail sooner or later, and die; but we all know, I think, from past experience, that our strength and vigor of mind and body depend very much on how we take care of ourselves. Of course, this is a question I have discussed again and again, dear friends; and I think I have prayed oftener that God would guide me in this matter of caring for myself and advising others than for almost any other one thing. I have quoted many Bible texts on the subject; and it seems pretty evident that even devoted Christians do not interpret Bible promises exactly in the same way. Even if not all physicians are godly men, they are as a whole a benefit to humanity; and I think we may safely thank God for our intelligent and up-to-date family doctors. They are having a pretty severe time of it just now with yellow fever in New Orleans and vicinity; but I have said all along that they will eventually prevail, and stamp it out as they have done in Cuba and some other places. The yellow fever, typhoid fever, diphtheria, and other contagious maladies, are at least largely the result of negligence in regard to sanitary measures. But now, if you please, let us get down to business — the business I have in mind at least.

During the months of July and August, of late years I usually have a tussle with my old trouble, malarial fever. I generally have a warning of its coming by a lack of circulation, indigestion, etc. Some time in July a postal card came through the mails with something like this on it:

"Are you in good health? Is your body throwing off and disposing of the refuse matter through the kidneys, pores, etc., as it should do? Are you getting in the condition of a dwelling when the drainage-pipes and the sewage are clogged up so poisonous matters are getting into your blood, clogging the circulation, nutrition, etc.? If so, we should be glad to explain to you what we are able to do for people in your condition, especially elderly people."

I sent for further particulars, and found the institution was a nicely arranged sanitarium; but the expense of treatment was from $18 to $40 a week, besides a fee to start with of $10 to the corps of doctors whose business it is to look patients over and make a diagnosis. Now, I am not writing up a humbug institution. I believe this establishment, fully equipped as it is, is doing a good work for humanity. I meditated paying them a visit just to see what they could do. I prayed over the matter. Was it God's will that I should seek for health along this line? If they could do all they claimed, I should want to write it up for GLEANINGS; and then the question came up, and I prayed over it some more. Even if I should receive such health as I might expect at my age, would it be just the thing here on these pages to advise others to go to that institution or a similar one? It did not seem to me that it would. If I am blest in my search for health I want it to be along some line in which I can ask all my friends to follow me. If it is where they can not consistently follow, I do not know but I should prefer ill health with the rest of humanity—that is, if it is God's will.

I presume the above confession will be the means of deluging me with a lot of circulars and letters from friends who have been cured—from Christian Scientists, Ralstonites, and a thousand others. Although I have spent a good deal of time in investigating these things I do not feel satisfied with any of them. They may be right, but God has not called me to indorse or accept them. What *he* pointed out, as nearly as I could make out, was to go back to the "cabin in the woods" where I have so many times found health and happiness and a revival of the Holy Spirit in my heart—at least I think I am stating it fairly when I say so.

We did not get up to the cabin in the woods until the last of July. It usually takes me a week or even two weeks after I get there to enable me to begin to feel like a boy again. This last trip was no exception. As we had no horse and buggy, no automobile, and not even a bicycle that was of much practical use through the sand and over the hills, I was compelled to go on foot. For several days I got so tired in climbing hills I really would have meditated going back to Ohio had it not been for the memory of other experiences. Pretty soon I made a discovery. I have been making them all my life; and may God be praised for the happy surprises he has given me along this line. My discovery was a plan by which I could climb the highest hills and *get rested* instead of becoming tired. You may laugh at it; and, to tell the truth, I am not sure it will work with everybody, but I think it will be all right if you will only persevere. I want a lot of you to test it and let me know about it.

When you climb a long hill on foot you soon begin to pant for breath, or to breathe hard, perhaps I should say. Now, do not give up just because you feel tired. Keep right on climbing hills, but walk slower, and encourage as much as possible nature's demand for more oxygen. Draw in a great lot of air. Swell your lungs out away beyond their natural capacity during ordinary breathing. Let the air out slowly, then take another big long breath. Stand still during a breath or two if you choose, but do not stop very long. Keep going so as to keep up this long deep breathing. You want to breathe as one does when asleep. Just watch such a person take a long breath and rest a little, and then take in another breath. That is the kind of sleep that gives one strength and energy, especially if he has a window open, or, better still, is sleeping outdoors.* If your hill is long enough, and you go to work deliberately in filling your lungs repeatedly to an unusual extent, the climbing will eventually begin to give you new vigor and energy. Before you get to the top of the hill you will feel an exhilaration and inspiration caused by the unusual quantity of oxygen. T. B. Terry and others have advised this long deep breathing without climbing a hill. I have tried it, but it does not work with me. It makes me dizzy. There has got to be exercise enough of some kind to *call for* this extra amount of oxygen; then when the blood is throbbing and going with great leaps it takes up the oxygen and assimilates it. Of course, I am touching on a matter I talked about in riding the bicycle—second wind; and you can get this precious second wind in a good many different ways. Perhaps this peculiar climate and pure air around Grand Traverse Bay may have something to do with it. The freedom of that locality from malaria has, no doubt, much to do with it in my case; but I think it will work, at least to some extent, everywhere.

Now, after such hill-climbing, say for a whole forenoon, with the pleasant visits now and then with the neighbors, you will have a good appetite, and an extra dose of oxygen will be an amazing help to more perfect digestion. I do not believe, however, that aimless climbing of hills will do very much good. You should have some errand. Go to the postoffice or to the depot. If you are out in the woods, go to the neighbors for butter, milk, and eggs. If you climb some more after dinner it will do you more good. Pretty soon you can add fruit to your *menu*, and it will digest all right and not make you sick, even if it is hot weather.

One thing more, you must not be cumbered by a great lot of useless clothing. One of our first visits was through the woods, on Mrs. Root's "avenue," as we call it. It is not much of an avenue, for it is an awful crooked trail around great logs, stumps, and impenetrable brush, up and down ravines and canyons. At the end of this trip I found our nearest neighbor was at work in the field, with no garment over his chest and arms except a very thin undershirt. Mrs. Root said she felt troubled right away, for she knew I would jump at the idea of dispensing with all useless clothing in the month of August. Off went my shirt when I got home, and it was off every warm day when I had work to do. With thin pants, light shoes, and a hat that was almost no hat at all except that it kept off the sun, I was ready for climbing hills all day long—at least after my strength came.

At different times in the past we have heard very much about air baths. With my light clothing I could have almost as much of an air bath as if I had no clothing at all, especially while I was at work in the woods. But the air bath was not all of it. The culmination of my emancipation from all my ills, and the stagnation in my circulation, came about by a little incident that I am going to describe minutely. I have used a lot of big words in the sentence above, I know; but they hit the spot so exactly I will let them stay there.

When we first came on the place, some three or four years ago, I bought a hydraulic ram to carry the water from a spring up to our cabin. But when we laid the iron pipes it brought it so near the cabin the ram was never used. One hot day in this present August I thought I would hitch it to the water-pipes just to see how it worked. It did the work beautifully, sending quite a stream of water up into the tree-tops. I could not attach it just then so as to send the water clear into the kitchen, because of a lack of tools and attachments — at least I thought I could not. But next day I began studying over a plan by which I could install the apparatus without any tools for threading pipe. As you may be in a similar predicament some time I will tell you what I did. The ram was to be attached to the water-pipe where it passed through the lowest ground. In order to get the pipes apart to make room for it I uncovered the coupling in four different places. With my pipe-tongs and wrench I started each one of the four joints, and then screwed two of them as far as I could in one direction, and the other two as far as the threading would permit in the other direction. This permitted the coupling to be taken apart in the middle. Screwing the attachment to the ram on to one section of pipe was an easy matter. To attach the other I hunted up all the short pieces of pipe, both three-fourths and one inch, I had on the premises. By screwing these pieces together, going back of the ram and then forward by means of a double elbow, I made the connection. While doing the work I was full of enthusiasm in seeing what I could do without proper tools and appurtenances. It was right in the middle of the day, and I was at work in the hot sun. As I was alone in the woods every bit of clothing was taken off that was not needed. I got into a profuse perspiration. The sweat was dripping from the end of my nose, and when I got

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*Mrs. Root and I both have been much troubled by a lack of ventilation, especially in warm weather, when we attend church, particularly if the church is filled as every church ought to be. Ventilation is at present very inadequate for schools, churches, and other places where crowds of people gather. Mrs. Root has gone so far as to declare she would have to give up attending church, especially in the evening, unless we could have better ventilation Well, I rejoice to tell you that, during the past summer, we have been having union meetings of all the churches in the park. The audiences are very much larger than can be secured in the churches, and I greatly enjoy the services. The young minister who spoke last Sunday evening remarked that it was a special inspiration to him, and he hoped it would be to his audience, to know that no "shingles" intervened between us and God's stars overhead. Let us do all we can to have *more* outdoor preaching.

through I found it was oozing out from almost every pore of my body *

For some weeks back I had noticed that not only was there a bad odor to my breath, but in spite of repeated bathings I did not smell sweet and clean as a person in good health ought to smell. Well, this profuse perspiration actually had a bad smell. I hope you will excuse me, friends, for talking plainly, for I am touching on a vital point. Old people can, if they care enough about it, smell as sweet and clean as a babe, or at least pretty nearly so. When I was in Cuba during the extremely hot weather, I mentioned that my perspiration seemed to be sticky or glutinous, and gave off a bad odor until I got entirely free from it by using a shower bath every day or twice a day. When I noticed that peculiar glutinous perspiration that seemed coming out all over my body at the time in question, I began to think of a shower bath. I went back in the woods where my celery garden used to be, pulled a plug out of one of the large pipes, and the water instantly shot clear up into the branches of the trees overhead. It came out not only by the pailful but by barrelfuls. I knew this could not last, because it would exhaust the reservoir at the spring. But I thought it would last long enough for what I wanted it. When I first got under the shower bath I thought I could not stand it; but after a little I found it just delightful. I not only scrubbed my body with my hands, but I applied the full force of a stream that would rise twelve or fifteen feet high directly against every part of my body until I felt as if I had had a massage. Then I dried myself in the sun, and thanked God that it was possible to get such exhilaration without the use of any drug or stimulant. I thought *again* of that passage in the book of Job, where, in speaking of the horse, it says, "He paweth in the valley, and rejoiceth in his strength." After that I managed to do some kind of work that would get me into a profuse perspiration almost every day, following it up with a shower bath with force enough from the stream of water to give me a good pounding, and it worked wonders. May be the sanitariums have something as good; but my medicine did not cost two or or three dollars a day for board and lodging, besides feeing doctors. It was God's air and God's water. I have been tempted, sometimes, to think that the water of the springs around Grand Traverse Bay has peculiar medical properties; but the probability is that almost any spring or other good water will do equally well.

Now, there is another factor I must not omit. During all of this "treatment" I was attending revival meetings every evening, and getting my heart fuller and fuller of God's precious promises and of the comforting influences of the Holy Spirit. There may be other ways of giving old people glimpses of the fountain of perpetual youth besides those I have discovered away back there in the woods; and I have no disposition to quarrel with anybody nor to say my way is best; but the pure air and pure water I have spoken of are free to all. I can say to every one of you, "Ho, every one that thirsteth! come ye to the waters and drink."

Perhaps to be truthful I should say that, while up there in the woods attending meetings every evening, I did very little reading of any kind, and very little writing. As a consequence, when I got home a great lot of correspondence was piled up on my desk, to be answered. God did not intend these lives here on earth to be altogether selfish ones. Very likely there *are* times when the demands on our time and strength are such that we can not neglect life's duties long enough to enjoy the very best of health—that is, looking at it from a Christian standpoint.

Now, friends, don't you think my plan of "doctoring" is a pretty good one after all—at least for most people?

OUR HOMES,

BY A. I. ROOT.

Ye have heard that it hath been said, An eye for an eye, and a tooth for a tooth; but I say unto you, That ye resist not evil; but whosoever shall smite thee on thy right cheek, turn to him the other also.—MATT. 5:38, 39.

In this Christian nation, and during this twentieth century, it does seem as if our people might get over the fashion of thinking it gentlemanly to knock a man down should he call you a liar, or to *shoot* a man down if he does certain things. If a midnight burglar arouses you from your slumbers, and demands your money or your life, I suppose the thing to do is to shoot him if you can. *This* is self-protection; for we well know that at least the average midnight burglar carries a revolver, and supposes everybody understands he shoots without mercy if you interfere in any way with his plan to rob you. You do not shoot him down exactly to save your money, but to save your life or the lives of those near and dear to you. If the circumstances are such that you have no good reason to think your own life is in danger I think I would let the midnight burglar take what he could find and get away, rather than take any risk. Circumstances would have to decide largely what is best to do. But even in such a case I would advise everybody to be slow about deciding to take a man's life.

A man whom I knew well found somebody was pilfering every little while from his store. He lay awake with a loaded gun, saw the man come in with a dark-lantern, and then deliberately shot him dead. Then he found out that it was a poor neighbor of his. If I am correctly informed, this man never found such happiness in life after that, although the law exonerated him.

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* I must not fail to add that the hydraulic ram does its work beautifully. I hitched on a rubber hose and then stood on the front doorstep and called Sue to see that my apparatus threw the water up higher than the doorway and higher than I could reach. Then I added, "Why, I can pour a stream of water right down the chimney of the house if you want it."

"No, no, dear husband. Don't pour any water down the chimney, for mercy's sake, for I have hard enough work to get this little stove to draw as it is. Not any water, thank you, in the chimney."

There is another phase of this matter still more serious. Friend Abbott, in the *Modern Farmer*, comments on it as follows:

LET THIS AWFUL TRAGEDY TEACH FATHERS AND MOTHERS A WHOLESOME LESSON.

> Justice is sometimes swift and awful in the way it is administered, and there are times when men can make of themselves judge, jury, prosecutor, and executor in one, and still have the respect and approbation of the law-abiding citizens of the land. Such a case occurred in St. Joseph last month, when a married man committed a vile crime against the thirteen-year-old daughter of a farmer who lived about two miles east of the city. The man took the girl out for a buggy-ride, came back with her after dark, and then took her to the laundry-building where he and she worked, and spent the night there. When the father learned from the daughter what had happened, he came to the city, purchased a first-class revolver, went to the laundry, made sure he had the right man, and emptied the contents of his gun into the body of the offender, who died at once. He then went out and gave himself up to the officers of the law, calm and cool, making no attempt to cover up any thing he had done. He is now out on bail, some of our best citizens being on his bond, and plenty of others were just as anxious as these to do the same thing. What will be the final outcome of the affair we are not able to say at this time, neither are we fully prepared to say that he was fully justified in doing what he did. Suffice it to say at this point that the sympathy of almost the entire community is with the man who did the shooting, and there are probably very few fathers who under similar circumstances would not do the same thing he did; but there is *another* side to this affair about which very little has been said. This is our excuse and reason for mentioning the subject here. There is a side which should lie very close to the heart of every father and mother in this and all other communities—a side on which this father and every other father should ponder with prayerful seriousness, and see if he is entirely blameless. This father is strong and healthy, has a wife and three children, two of them being younger than the one mentioned above, has a small farm of rich productive land near a thrifty city, is possessed of other property, and is no doubt able to make a fairly good living for himself and family. We have no disposition to find fault or be a discordant note in this song of universal sympathy, but we want to introduce the *other* side by asking a few simple, plain, but pointed questions. Why should a thirteen-year-old girl from such a home come to St. Joseph to work in a laundry? Why was she not at home with her parents, or attending school? What were her father and mother thinking about when they let her go out from under their watchful care to be exposed to the endless chain of temptations which run rampant in every large city of the land? What did they expect in return for taking these awful chances? Only a mere pittance, not enough to board the girl in a respectable boarding-house, if she had been compelled to board instead of finding a home with her aunt. It is all right and proper for the children to be taught early in life to do their part toward keeping up the home, but they should learn this lesson at home, and not among strangers. We can not refrain from saying to fathers and mothers who have pleasant homes in the country, keep your girls at home if possible, and it is possible in most homes, until they have reached mature life. Give them a chance to do for themselves at home, and teach them to feel a sense of security and contentment there which they can not find in any other place, and then such a blight and sorrow as this will never overtake them or you. It seemed like putting it very strong, but a gentleman in Kansas City, who evidently felt deeply on the subject, said to the writer, "What right have parents to bring children into the world, and then at the tender age of thirteen turn them loose to be exposed to such awful temptations? Why," said he, "do they not keep them at home? I would work my finger-nails off before I would let a child of mine at that age go out to work in a laundry." I could not answer his question or meet his argument.

I wish to give a hearty amen to what friend Abbott has said, and then I want to add a little.

First, it is a good thing for a whole community to boil with righteous indignation when one who calls himself a man, and a married man at that, deliberately sets to work as in the above case to ruin a child. I admire the spirit that arouses a whole populace; but I deplore the lack of wisdom that directs any one person or a community to take the law into their own hands. This indignation should turn in the direction of enforcing the laws we have already, or to giving us laws that are still more severe.

Our older readers are pretty well posted in regard to the law regulating the "age of consent." But it is different in different States. It seems to me this is very unfortunate. I have not the tables at hand; but if my memory serves me right this age of consent of a girl runs all the way from 12 to 18 years of age. There is one State, and perhaps more, in the South that fixes the age of consent at 12. In other words, a girl who is over 12 years of age, and listens to some fiend in human form, has no redress by law, the State where she lives deciding that she is "old enough to know better." If I am correct, Missouri places the age of consent at 14. In that case the above-mentioned crime would come under this law, but I do not know just what the penalty is. Now, let these indignant people get to work and raise the age of consent, and then make the punishment the same as for murder if they think proper, especially where the child is so very young. It may be true that such a man is not fit to live; but for God's sake let the State in which he lives put him to death.

In our own State of Ohio, if I am correct, the age of consent is 16 years. In one of our States it is 18. One objection has been made to making it 18 all around; and that is, it would give vicious women below the age of 18 a chance to blackmail, etc. If this is true, there are two things to be done. One is to insist on having better environments and a better education to give all of our girls under 18. The other is to warn mankind, old and young. Let them know it is dangerous business to trifle with girls under the age of 18.

There are some queer ideas prevalent in regard to what is the proper thing to do under such circumstances. Many professors of religion—indeed, I do not know but I may say ministers of the gospel—are so thoughtless as to say that the man was justified in the case friend Abbott gives, and some go even further, and say he did just right. The father was in a terrible passion; in fact, we could hardly excuse him for being otherwise; but he should have called on his friends to advise him. No one should think of acting in such a matter when he is in such a rage; and under no circumstances should one think of taking life when he is in a frenzy. Even in the matter of self-protection it is dangerous business. Every little while the papers tell us of somebody who shot a friend by mistake. In one case a friend crawled into a neighbor's house, which house was just like his own. He supposed he was going into his own room. When his folks went away they locked the house up. In the darkness of the night he made a mistake in the house, and his neighbor shot him dead. Similar cases come up every little while. When it comes to the matter of taking life, for God's sake, dear friends, go slow and be careful.

Every little while there are neighborhood quarrels. We do not need to go to Kentucky, necessarily, to look up feuds of long standing. Men have grudges against some of their fellow-men. I have had them myself. In a few instances it has been hard work for me to keep from saying in my heart, when I heard of such and such a man's death, "I am glad of it." Where a man has spent all his life in debauching and ruining humanity I do not know but it is right in God's sight to say "Thank God" when such a man dies a natural death; but when some person dies with whom you have had *personal* difficulty, one who has had a fair reputation with people generally, then beware how you rejoice because God has taken him away. The Bible tells us (I. John 3:15), "Whosoever hateth his brother is a murderer."

Somebody may say, "Mr. Root, you are finding fault with that father for avenging the ruin of his child. What would you reccommend or what would you have done?" I will answer the question by mentioning a case that occurred a few days ago in the courts of Cleveland. A low-lived wretch insulted a beautiful young girl of about the age of the one mentioned above. She reported him to the police, and he was sentenced to a fine of $25 and six months in the workhouse. During the trial two women were present with their children—the mother of the little girl who was insulted, and the other one was the wife of the man who was sentenced. This first mother, when she saw her neighbor was a poor woman with several children depending on the father's daily wages for support, her heart relented. In the presence of the culprit she went to the judge and begged that the sentence be suspended. She said to this guilty man, or wretch, perhaps I ought to call him, something like this:

"Sir, you are a stranger to me; but I feel sure you are sorry for what you have done; and while I find it a hard matter to forgive you for the wrong you have done my innocent child, for the sake of your perhaps innocent wife and children I am willing to forgive you; and I am sure that, since you have looked at this case from all points of view, since you have seen the trouble and distress that it has brought into *your own* home as well as mine, you will repent and ask God to forgive you if you have not already done so. For their sakes I am willing to beg that you be released to take care of your loved ones, for I feel sure you do love them, even in the face of what has happened."

The newspapers did not give the substance of her plea, but it was probably something in the line I have given above. Is not that the Christian way, or, better still, the Christlike way? Do we not all honor and respect that noble woman? Now a word in regard to this man. In fact, there are a number of them in Cleveland. Every little while they are arrested for impure remarks to schoolgirls. When the names of them are given you will discover that most of them are foreigners. They have had bad bringing up. They have spent their time in saloons. Not only do saloons contaminate by the drink habit, but they are the hot-bed of foul stories, such as no man, especially a married man, should listen to for a moment. These vile and filthy stories are not entirely confined to saloons, but mostly so. Once in a while somebody commences to tell them in my presence, but I have never failed in stopping them. I have never yet failed, so far as I remember, in finding in the crowd some man who had manhood enough to stand by me and declare I was right. These foreigners who come to our shores need to be educated and looked after. We want to get them on "higher ground." Young boys should be watched to see that they do not get into the fashion of indulging in filthy talk. Professor Cook tells us a little story that I think I may repeat. At some great gathering they were offering toasts. One prominent man, as he held up his glass, said something that reflected on all womankind. Somebody else rose up instantly and said the brother probably referred to his own wife and daughters rather than to the wives and daughters of those who were present. The "brother" (?) jumped up with an oath on his lips, and was going to shoot the man who made insulting allusions about his women-folks; but a lot of others grabbed hold of him and told him to cool off a little and reflect that *he* was the one who threw out an insult that would include all the wives, mothers, and daughters of the others present.

The recent disgraceful newspaper reports in regard to the Taggart divorce trial in Wooster, O., reveal the awful condition of morals in at least some of our army posts. Several good Christian people have mentioned the fact that this Taggart divorce business is going to be an eye-opener in regard to the custom of army officers and the way in which they drag their wives down into the slums and filth—at least some of them. One witness testified that, even if it were true that Taggart drank until he had to be confined at times, he was not particularly worse than the rest of the officers. Another one said that, even if Mrs. Taggart did drink beer and whisky, and smoke cigarettes, she was not particularly worse than the wives of other "officers."

Now, with all this iniquity going on in our land, is it to be wondered at that occasionally a man gets into the Devil's clutches to such an extent that he is guilty of such sins as are mentioned at the head of this talk?

In one sense the man is to be pitied, because he lets Satan get hold of him.

Then I wish to emphasize what friend Abbott has so well said, that the parents of this girl were greatly at fault for letting this thing go on to its culmination, for it must have been the work of weeks and months if not years. Once more, how does it happen that this man's wife and relatives had no intimation of how he was wasting his time, to say nothing worse, and yet did nothing to stop it? Besides, the other hands in that factory must have noticed things—it is unavoidable. How about the boss or employer? Did he think there was no harm in this singular intimacy between a married man and a girl of 13? I myself have made several disturbances, and may God be praised that I happened around and noticed what was going on. I have made a fuss or a "row" when the greater part of my friends and neighbors said I was stirring up trouble needlessly. They said I had some old-fashioned puritanical notions about such things. They said that it was customary for men, out of courtesy, to bestow these simple attentions on even very young girls. My reply was, "All right; but let this man (I do know but *I* should call him rascal) show his courtesy and gallant ways to *all* womankind. What I complain of is that he singles out one particular young girl as the recipient of all his acts of gentility. I am glad to know that such men are being stopped.

In yesterday's daily we are told of a fellow who asked a couple of young girls where he could find a certain street. One of them told her companion that the man knew the street perfectly well. They crossed over to get away from him, but he crossed over too, and then they came back where they were first; and when he followed them again, one of the girls screamed. You may think she was foolish to make a fuss in an open street in regard to such a trifling matter; but a policeman who had spotted the man before this occurrence was standing where he could keep his eye on him; and just as the girl screamed the policeman had him by the back of the neck, and marched him off to the lockup. Now, it is perfectly right to ask anybody—man, woman, or child—to direct you when you are in a hurry in any town or city; but after you have done so, go straight about your business. If you follow the incident up by making it an excuse for scraping up a further acquaintance you ought to be arrested.

God grant that this zeal, or, better, mistaken zeal, to lynch people instead of waiting for the slow process of law, may be turned in the direction of nipping the whole piece of iniquity in the bud. Prevention is better than cure. If there is no *other* way to do away with lynching colored people in the Southern States, we had better ask our intelligent and God-fearing friends to unite with us in spotting these loose lewd colored men and boys who are hanging around, and have them shut up before they get far enough in their career of crime to commit these outrages. Everybody should be on the alert to get hold of such characters, and have them cared for. Better have asylums and prisons especially for them, and have every one, black or white, who shows any tendency or disposition in that line shut up as a means of public safety. I think such a course would soon cure the evil; and by all means let the penalty of the law be administered by the *officers* of the law. If there must be a mob in order to have our laws administered, let this mob, or, better still, an assembly of law-abiding and God-fearing people, tell the officers of the law what they, the people, expect of them. And I do not know but it would be well to tell these low-down criminal lawyers who defend such wretches that your particular locality is not a healthy place for them.

In a recent case of this kind where a crazy mob pointed their guns at the sheriff, and told him to open the jail so they could get out a colored man and string him up, the brave sheriff replied to them something as follows:

"My friends, if you put this man to death whom I have in charge, you may get off with a light punishment, perhaps none at all; but if you shoot me, an officer of the law, because I insist on upholding the law, you will bring down the indignation, not only of our State, but of the whole country. I am defending our laws, and trying to defend the honor of the American flag. If you want to shoot *me* down, shoot! but you can not get this prisoner without walking over my dead body." They did not shoot. They dispersed and went home.

One thing more before closing. When that man found that his daughter had been outraged it seemed to him that nothing could ever satisfy until he could put a bullet through the offending neighbor; and may be he felt a little bit of pleasure in seeing the offender die before his eyes. But what then? When you get into a fight with a man it must be a struggle as to who shall kill the other. You think, and the world seems to think, that, if you come out ahead before he kills you, you have done a big thing. I am not so sure of it. I have got as much of a temper as anybody; but I know already what remorse is. If I were in a fight with a neighbor, a man who is not a highway assassin, and I should by my superior strength or agility kill him before he could succeed in killing me, I am inclined to think I should have the worst of the bargain. The remorse that would trouble me would be worse than death.

Another thing, you do not make a man any *better* by killing him. I do not know that you change his attitude of heart at all. He is not an antagonist any longer; he is gone; I confess we do not know exactly where nor to what extent, but he does not oppose you any longer. A friendly contest may be a pleasant thing. It may stir you both to greater activity and praiseworthy achievements; but who wants to see his opponent wiped off in an instant of time from the face of the earth? May be a prize-fighter does, but I doubt it even then; and no good man wants to see his rival *utterly* extinguished, life and all. A Rockefeller, if we are correctly informed, may not care when his opponent is financially ruined; but I am not sure that even *this* is true. Now, when you kill a man you have not beaten him in a fair and square conflict. Suppose you and your neighbor were in a hot contest for some particular prize, say a thousand or ten thousand dollars. Would you like to see him killed by accident so that the prize might be yours? Surely not, if there is a spark of manhood about you; and a *hundred times* not if you have any thing of the Christlike spirit in your makeup.

Now, while we labor for the uplifting of humanity, shall we not listen to the words of the Savior when he spoke the words of our little text at the head of this reading?

MEDICINE ADVERTISEMENTS IN RELIGIOUS PAPERS, ETC.

The following, from the *Modern Farmer and Busy Bee*, sounds so much like our good Abbott that our readers might almost have guessed whom it was from, even had I not told:

> A trade sheet has this bit of information: "The —— Remedy Company, of New York, requests rates of religious papers." What business has a religious paper quoting rates for a remedy company of any kind? If people must be afflicted with the ad's of patent-medicine fakirs, for heaven's sake let us keep them out of our religious papers. If any paper on earth should bring to its readers the gospel of good cheer and help, it is the one that pretends to speak in the name of religion. We hear enough about our ailments in other papers without having the horrid descriptions such as are found in patent-medicine ad's of all sorts of diseases inflicted on us every week in a religious paper. We hope the time may come when all papers that contain such ad's will have to go a begging for subscribers. Do not read about your own ills or other people's, do not think about them, do not talk about them, but think bright, clean, healthy thoughts and you will not need to interest yourself in the advertisements of remedy companies. The best remedy on earth is plenty to do, plenty of sunshine, plenty of fresh air night and day, and a clear conscience.

I heartily indorse what friend Abbott has to say; and I regret to say that at present I do not recall any religious paper of large circulation that refuses to advertise medicines except the *Sunday School Times;* and, by the way, I do think the *Sunday School Times* is the best religious paper to put into the family of any thing on the face of the earth, not only because of the high moral tone of its advertising pages, but all through from beginning to end. If the religious papers of our land came anywhere near being as particular in regard to their advertisements as our prominent *agricultural* periodicals, we might rejoice. I do rejoice every day to see our agricultural editors present such clean and wholesome sheets for the homes of our rural population. They are exposing humbugs, pointing out frauds, and warning against intemperance and sabbath desecration, in a way that our religious periodicals *dare* not do while they permit such stuff as they do to fill their advertising columns. Now, let all who love righteousness and hate iniquity make a vigorous protest. Tell your respective editors you can not permit their sheets to be read in the home unless they get on higher ground, especially in the matter of advertising.

WINTERGREENS — GROWING THEM IN THE GREENHOUSE, ETC.

To tell the truth, I have not had much success in the above enterprise that I wrote up early in the spring. I have had some success in growing them outdoors, but came pretty near failing in that also. Finally, at the suggestion of one of the good friends who sent me a lot of wintergreen-plants, I put them under some of the evergreens around our apiary, where there is quite a covering of what is usually called "pine needles." To my great surprise, here in the dense shade, and right among the roots of great thrifty evergreens, the wintergreens took hold and grew all right. But with the best kind of cultivation, in the sun and in the shade of our big brick house, they barely kept alive. I presume likely the wintergreens and wintergreen berries can be grown cheapest in their native wilds in Northern Michigan; and I hope the beautiful berries will soon be shipped to other localities that more people may enjoy the luscious fruit.

THE GINSENG BUSINESS.

As letters keep coming in, asking for particulars about the ginseng business, and if it is true that I have made a "great success" of it, etc., I shall have to say again, I have never had *any* "success" with it; and the reference in regard to the same by the ginseng men who have plants and seeds for sale are untrue and misleading. Look out for everybody who wants to sell you plants or seeds, or start you in the ginseng business. We clip the following from the *Practical Farmer*, of Philadelphia:

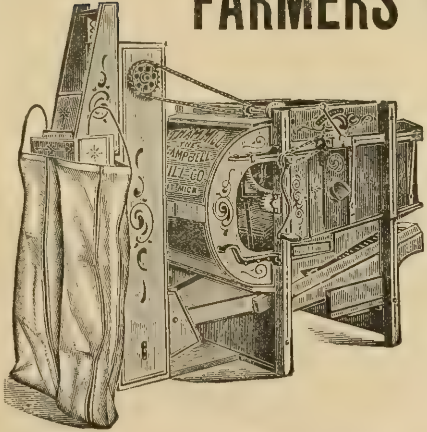
> The Department of Agriculture advises that there has never been any success in the culture of ginseng, except in sections where the plant is found growing wild. But as the Chinese have decided that they do not want the cultivated roots of ginseng, of course the cultivation will soon come to an end, for the plant is perfectly useless except to sell to the Chinese, who imagine that it has medicinal value. Therefore it is about time to note the passing of the ginseng craze.

In addition to the above we are told by the papers that the recent Chinese boycott promises to wind up the trade in wild roots gathered in the woods.

Squab Book Free

Squabs are raised in one month, bring Big Prices. Eager market. Money-makers for poultrymen, farmers, women. Here's something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address

PLYMOUTH ROCK SQUAB CO.,
320 Howard St., : Melrose, Mass.


THE CAMPBELL MILL CO.

FARMERS' BUREAU OF INFORMATION

In Charge of Crop Experts.

How to clean, separate, and grade grain and seed.

Advice on grain-breeding, planting and seeding.

How to overcome the weed nuisance.

How to raise a third to a half more crops on the same acreage.

How to handle and market your crops.

All Questions Promptly Answered by Men Who Know.

FREE Our Bureau of Information is now fully organized with a Crop Expert in charge of each department, and its services are freely placed at the disposal of Farmers, Stockmen, Ranchmen, and Seedmen. This is the first Bureau of its kind ever equipped at private expense, and all information is furnished without one penny of charge. **The Manson Campbell Company Ltd.**, were the pioneers in the "clean seed" movement, and their efforts along this line have aroused such widespread interest and accomplished so much good that they decided to establish a separate department for carrying on this important work.

The busy farmer can not take a course in an Agricultural College nor spare the time to dig up information from the mass of long-winded bulletins issued by the Department of Agriculture and the Experiment Stations. When he wants information, he wants it **quickly, and boiled down to the simple facts, and it must be accurate--not mere theories, but proven practical information.** Send on your inquiries and you will get **useful, valuable help--the kind that will make your farming operations 100 per cent profitable.** The Bureau was the natural outgrowth of our great manufacturing business. The success of the

CHATHAM FANNING-MILL

which is now in use on hundreds of thousands of farms throughout the United States and Canada and in every grain-growing country in the world, has been remarkable. Unquestionably its use has added millions of dollars to the country's wealth. Its work in cleaning, separating, and grading grain and seed has never been equalled. It was designed by experts who have made a life study of the many problems that it solves. The 17 screens and riddles with which it is regularly equipped are used in so many different combinations that the simple mention of its different uses makes a list of surprising length.

The invention of the new Oats-from-Wheat Riddle, and the new Corn-grading Attachment, both of which can be supplied with the Chatham Fanning-mill, was the crowning achievement of our experts. The Oats-from-Wheat Riddle is a wonderful piece of mechanism, containing 4500 parts, and gives an absolutely perfect separation, enabling growers of succotash to realize the full measure of profit from this crop. The Corn-grader Attachment has been rigidly tested by the Iowa Agricultural College and its work pronounced **98 per cent perfect--the highest percentage ever reached in grading corn by mechanical means.** The Chatham Fanning-mill, equipped with these two great inventions, is meeting with an enormous sale, and we have been compelled to enlarge our factory to meet the increased demand.

We have branch warehouses in twenty-four shipping-point centers, which gives our customers the advantage of prompt shipment. We sell on time or for cash, and PAY ALL FREIGHT. We want to make you a present of our interesting book, **"How to Make Dollars out of Wind,"** and we also want you to make use of our **Free Information Bureau. Be a 100 per cent Farmer!** Learn how to banish the weed nuisance, and grade up and breed up your grain so as to raise banner crops and get top prices.

The Manson Campbell Co., Ltd., Wesson Ave., Detroit, Mich.

Manufacturers of Chatham Fanning-mills, Incubators and Brooders.

The Manson Campbell Co. Ltd. are thoroughly reliable.—EDITOR.

GROCERIES AT WHOLESALE PRICES

FREIGHT PAID

FREE This catalogue will save you money on your grocery supplies.

What do your groceries cost you a year? Will you buy them of us if we can prove that we will save you from 10 per cent to 20 per cent and *pay the freight?* That certainly is an amount worth saving; it is worth the trouble of asking for the proof. Get our large Grocery List and compare our prices with what you have been paying. Then put us to a greater test—send us a trial order and compare the goods and the prices. If we do not save you big money, send the goods back at our expense. The grocery bill is the biggest part of the family expenses. We will cut it almost in the middle and guarantee everything we sell. We can do this because we buy in immense quantities—carloads and trainloads—and we give you the benefit of our ability to buy cheap; in fact we can sell to you at just about the figure your local dealer would have to pay. We save you *his profit* and the *freight* besides.

To save still another 10 per cent, become a member of the **Co-operative Society of the National Supply Co.** We'll tell you how to get this extra 10 per cent discount, if you will write for full information. An easy way to make money.

National Supply Co.
Grocery List.
No 10
May, June, July, August, 1905.
Wholesale distributors of everything for everybody
Direct from factory to consumer.

If you want to save money get our catalogue and learn just how cheap you can buy groceries from us. Catalogue is ready and lists everything in the grocery line. We send it *free*.

Co-operative Society of the National Supply Co., Lansing, Mich. and Chicago, Ill.

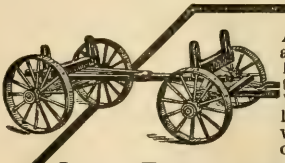
Protect Your Face

Keep it soft and smooth and enjoy shaving by using

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

The J. B. Williams Co., Glastonbury, Conn.



A low wagon at a low price. Handy for the farmer. Will carry a load anywhere a horse can travel.

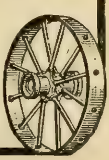
Low Down Wagons

soon earn their cost on any farm.

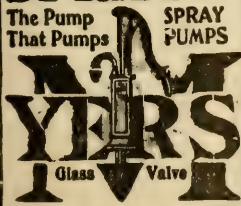
Steel Wheels

for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to

Empire Mfg. Co., Box 91 H Quincy, Ill.



SPRAY PUMPS



Double-acting, Lift, Tank and Spray **PUMPS** Store Ladders, Etc. **HAY TOOLS** of all kinds. Write for Circulars and Prices.

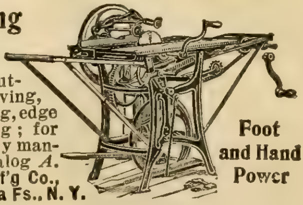
Myers Stayon Flexible Door Hangers

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, · Ohio.

Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.



Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—To buy colonies of bees. State price and condition. F. H. FARMER, 182 Friend St., Boston, Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED. — Honey in any quantity. State price, quantity, and quality. JUDSON HEARD, 110 South Forsyth St., Atlanta, Ga.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes. H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey. CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—To exchange 20 acres of prairie land in the mineral belt of Southwestern Missouri for good wild land in Grand Traverse or adjoining counties in Michigan. A. L. WEIDLER, Rt. 5, Carthage, Mo.

WANTED.—Bees to run on shares in Cuba, by an experienced bee-keeper who has successfully both let bees on shares and worked them for other parties. This year's crop is over 20,000 lbs. F. B. CAVANAGH, McBain, Mich.

WANTED.—Beeswax. We are paying 26 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 100 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price. THE A. I. ROOT COMPANY, Medina, Ohio.

Situations Wanted.

WANTED.—To work for some good bee-keeper who will furnish house for small family by the year, or will take bees on shares J. E. HUGHES, 810 So. Ninth St., Elwood, Ind.

WANTED.—Situation in Cuba; will either take full charge of an apiary or work as helper; over 15 years' practical experience in bee culture, and understand the business in all its branches. Particulars by letter. F. G. DENZINGER, Olean, N. Y.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

FOR SALE.—A new 4x5 camera, with accessories. S. G. KILGORE, R. F. D. 1, London, Ohio.

FOR SALE.—Full colonies of leather-colored Italian bees at $4.00 per colony. F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Second-hand 60-lb. cans. Guaranteed to please at 35 or 40 cts. per case of two cans each. A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Three untested Italian queens for $1. See ad. Sept. 15 GLEANINGS. S. F. TREGO, Swedona, Ill.

FOR SALE.—Red-cedar fence-posts. STEEN FREEMAN, Wamsley, Ohio.

FOR SALE.—Jelly-tumblers for extracted honey. We sell barrel lots only. Can save you money; 33 different styles. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—For cash, five-gallon square tin cans, used for honey, at about half price of new tin cans. For prices, etc., address OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—Bee-ranch. I have one of the best bee-ranches in California, which I now offer for sale. I have produced over $2000 worth of honey from it this year. There is no bee-disease in this section. Write for particulars. 724 Irving Ave., San Diego, Cal.

FOR SALE.—My apiaries of 300 colonies near Macon, Ga., the third healthiest city in the U. S., a ready market for output at a fancy price. Prefer selling a half-interest to a good practical bee-man to take charge. If you mean business, address for particulars JUDSON HEARD, Atlanta, Ga.

FOR SALE.—6000 pounds choice clover and basswood honey in 60-pound cans; also one black Kentucky saddle and driving stallion, weight 1200 pounds—a beauty, sound and kind; 200 colonies bees, and fox and coon hounds. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—We offer, for the first time, queens which produce beautiful bees. You never will be sorry if you try one of our beauties. Untested, 75c; tested, $1.00. Choice strain of leather-colored queens at same price. F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—For a limited time we offer No. 25 honey-jars, porcelain cover, metal screw-cap, holding one pound of honey net, one gross in case, in five-gross lots, $4.00 per gross; less quantities, $4.50 per gross, f. o. b. New York. If you want to secure some, let us know at once. HILDRETH & SEGELKEN, 82-84 Murray St., New York City.

FOR SALE.—Complete modern apiary consisting of 200 colonies of Italian bees in eight and nine frame L. hives; wired frames built on full sheets of foundation; complete set of fixtures and tools for producing both comb and extracted honey; great bargain. Will be parceled off to suit after Oct. 1. Write for price, list of fixtures, etc. J. D. BIXBY, R. F. D. 2, Altamont, N. Y.

FOR SALE.—In the prairie belt of Mississippi, 225 acres of land, six miles from Macon, large house, four cabins, 20 acres timber, plenty of water; 652 acres, 12 miles from Macon, good improvements, plenty of water, 100 acres young timber, 350 acres in Bermuda and sweet clover, balance tillable. Part of this land will make 50 bushels of corn per acre and from one-half to one bale of cotton; daily mail and telephone; also 500 stands of Italian bees. No honey failure in 12 years. GEO. A. HUMMER, Brazelia, Miss.

New Goods---Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,

AT

SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ .˙ .˙

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danz., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

I WILL BUY

a few tons of honey, and pay cash at your depot. Correspondence solicited giving full particulars as to quality style of section, when it will be ready to ship, price wanted, etc. If satisfactory, I will call on you.

A. W. SMITH, BIRMINGHAM, MICH.

Co-operative Society of the National Supply Co., Lansing, Mich.

How Co-operation Helps. Co-operation is as old as history itself. It started on the farm years ago. As far back as memory goes, farmers have practiced practical co-operation. In the swapping of labor during harvest and haying time, in exchanging their products, and in many other ways, they have been mutually helpful to one another—thus exemplifying the advantage of co-operation in a simple but effective manner.

But the co-operation of to-day is broader in scope, and goes further, in that it helps in a financial—dollars and cents—way. Co-operation as it is carried on by the members of the Co-operative Society of the National Supply Co., of Lansing, Mich., has for its sole object the saving of money to its members. The Society supplies its member with every thing they need to conduct the business of the farm and the home, at prices that would not be possible in any other way.

This co-operation does not men the banding together of its members in a secret, oath-bound fraternal or political organization. It has nothing of that in view whatever. The co-operation which it offers its members is purely a business proposition—the putting of dollars into the pockets of its members by reducing the expense of conducting the business of buying and selling merchandise to all those who are fortunate enough to join the Society. By thus clubbing these purchases together, and buying in large quantities, as the Society does, the lowest cash prices are always obtained. This saving all goes to the members of the Society, and makes a membership very profitable—so profitable, in fact, that we are told hundreds of farmers all over the country are taking advantage of it and are joining in great numbers.

The Society issues a large handsome 1000-page catalog of all kinds of merchandise, which it will send free of charge to any farmer who would like to join in its benefits and help to push its good work along.

The prices quoted in this complete catalog are very low for the quality of goods carried, and purchasers save money by buying all their supplies from the Society. Members, however, are allowed ten-per-cent discount from these already low prices on every thing they buy. This is a straightforward proposition, and means that the Society has been builded on a solid, sure foundation.

The Society invites all who wish to save money to join; but it does not ask you to join blindly, or if it can not show you that such a membership will save you from $10 to $200 every year, as long as you remain a member of the Society. You use merchandise; why should you not buy where you can do the best? The way to make money is to save money. Every cent you save is that much added to your wealth. The way to become independent of trusts and monopolies is to co-operate with a society that can give to every dollar you spend the added purchasing power of the thousands of dollars the members spend annually. Stand alone and your dollar is but 100 cents: add to it the dollars that the entire membership spends, and who can measure the force and power of these multiplied dollars?

Write to the Secretary of the society, at Lansing, for full information and an application blank. Ask him how to join this Society, and how to save $100 to $200 every year as long as you live. He will gladly send you the proof, and tell you what the Society has done for its members thus far. Kindly mention this paper when you write.

I SHOULD LIKE TO CORRESPOND with any reader of GLEANINGS who might be interested in the purchase of 135 acres of land most favorably situated in North Carolina. Chance of a lifetime, at only $10.00 per acre. F. J. ROOT, 90 West Broadway, New York.

To Make a Success

of keeping bees in large numbers has been the leading theme of the Bee-keepers' Review for this year. Each issue contains one or more articles on this subject from men who have made great successes in this line; and these men are from widely scattered localities, from Vermont to California, and from Cuba and Texas to Minnesota. If you are at all interested in making your business grow until it brings you in thousands of dollars a year, send ten cents for three late but different issues of the Review, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

A FEW

Unsolicited Testimonials Showing Kind of Stock Sent Out by Quirin-the-Queen-Breeder

Our folks say that your queens are extra fine.
The A. I. Root Co., Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.
J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country.
E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St, Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.
S. A. Peck, Box 124 Northumberland, Pa.

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	....
Straight five-band breeders	5 00	.....	.....

Requeen your bees now; do not put it off till too late. Quirin's bees begin work in sections the last of April. Remember it's the early bees that make the nice white box honey. Do not delay ordering, as the queen-rearing season will soon shut down. We guarantee safe delivery. Any queen not found satisfactory may be returned inside of sixty days and another will be sent in her place. Italian queens only.

Address All Orders to

Quirin = the = Queen = Breeder

BELLEVUE, OHIO

We have ready for mailing a large stock of both

Tested and Untested Italian Queens

Either three or five banded queens. Specially bred for their honey-gathering qualities. Price, for tested, $1.00 each, $10.00 per dozen; untested, 60c each, $6.00 per dozen. ::: ::: ::: ::: :::

J. M. Jenkins,
Wetumpka, Ala.

Requeen your Bees. Now is the time to requeen your bees. I will sell you one tested red-clover Italian queen at 75 cents; six for $4.25; twelve for $8.00. I will guarantee satisfaction, and send all queens by return mail.
Fred Leininger, Ft. Jennings, O.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c —after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.
CHAS. KOEPPEN, Fredericksburg Va.

A TRIAL

of my strain of Italians will convince you of their merit Prompt shipment. Fine queens. No disease. Absolute satisfaction—or money back. What more can you ask? Untested, 75c; 6, $4.00; 12, $7.00.
S. F. TRECO, - Swedona, Ill.

RED-CLOVER QUEENS! Tested, $1.00 each; untested, 75c; average queens, 65c or two for $1.00.
G. Routzahn, Biglerville, Pa.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.
H. M. PARKER, JR., James Island, S. C.

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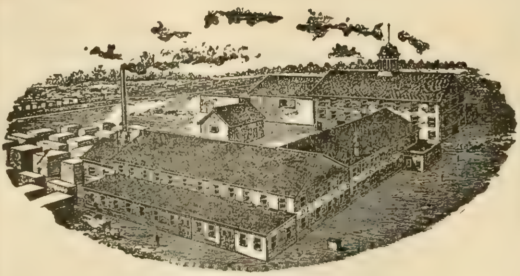

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Convention Notices.

THE NATIONAL CONVENTION TO BE HELD IN CHICAGO.

Ever since the breaking-out of the yellow fever in the South have I been receiving letters from different parts of the country, suggesting that the place of meeting for the National convention be changed to some Northern city. To all, for a long time, I returned the same reply: "Let's wait and see how things turn out. If the fever is crushed out of existence, or controlled, then we can go to Texas just as well as ever." To a certain extent, the fever has been controlled, but there seems to be no probability that it will be done with before the time that has been set for holding our convention in San Antonio. The time has come when we can wait no longer. If a change is to be made, it must be made at once, that bee-keepers may be planning accordingly. Before taking up the matter with the Executive Committee I wrote to the Directors, the editors of the leading bee-journals, and to several of the most prominent bee-keepers, asking for their views on the subject. The majority was overwhelmingly in favor of a change. The matter was then taken up with the Executive Committee, and every member favored a change to Chicago, during the fat-stock show, the first week in December. It is possible that some other Northern city has greater claims than Chicago for the holding of the convention, but the meeting must be held where reduced railroad rates will be assured, and the fat-stock show furnishes these.

It is possible that there is no real danger from the fever at San Antonio, but the *fear* of it is *real*, and would have kept away the Northern people. The bee-keepers of Louisiana and Mississippi would have been shut up in their own States. Texas has had a slim crop of honey this year, and, taken all in all, a convention this fall in San Antonio would have been a pretty slim affair. I think that even the Texans themselves would rather wait another year, when, if all goes well, the convention could be held in San Antonio with every assurance of a big crowd.

Arrangements have been completed for holding the meeting in Chicago, at the Revere House, corner of Michigan and Clark Sts., on the 5th, 6th, and 7th of December. This hotel can accommodate at least 300 bee-keepers, and the rates are 75 cts. for a room alone, or 50 cts. each where two occupy the same room. Meals are extra, or they may be secured at near-by restaurants.

W. Z. HUTCHINSON, Secretary.

Special Notices by A. I. Root.

THE MAPLE-SUGAR INDUSTRY.

A very valuable pamphlet of 56 pages has just been issued by the Department of Agriculture with the above title. The book does not treat so much on making maple sugar (although it goes over that pretty thoroughly) as it does on preserving and caring for our maple-sugar forests in the best manner. It is of special interest to me because our basswood orchard is now getting grown up with other kinds of forest trees, and we have neglected thinning it out. We have also forty acres here in Ohio that we purchased particularly to save the basswood timber; and I have been thinking of thinning out around the cabin in the woods in Michigan every thing except basswoods and maples. I did not exactly know how to go at it; but this bulletin directs in the thinning-out process that, instead of clearing out the objectionable growth all at once, you go through and cut off the larger part of the tops of all your objectionable trees when they are four or five feet high, preserving, of course, the maples or basswoods you wish to grow. This gives the selected trees a chance, and at the same time keeps the ground beneath well shaded and mulched. Forest-trees, to make their best growth, *must* have the ground shaded and mulched under them, and this forest selected to grow timber of sugar maples or basswoods for honey must not be pastured. All stock must be kept out of it.

This bulletin gives a series of half-tones showing how to manage the wild growth, and what the result is after a series of years. I was not aware before that any thing had been published on the subject, and hence I am greatly pleased to find there is such a work. They estimate the thinning will be worth enough for firewood to pay for the labor; and it is of the utmost importance just now that our forests be not only preserved, but put in the best possible trim for growing timber, and in doing this we secure the very best results in getting basswood bloom for honey and maple-trees for sugar.

I have been studying this matter of preserving forests for several years back. I have been watching the woods and the way the trees grow around our cabin, and I am sure the government bulletin is right about it. And, by the way, forest-trees under favorable circumstances make a much more rapid growth than one would imagine who did not watch the process, especially with thrifty trees under favorable conditions.

Ask for Bulletin 59, Bureau of Forestry, Department of Agriculture, Washington, D. C. At present I can not discover whether it is given away or whether you have to pay for it.

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Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

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500	3.00	5000 @	5.25

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100	$ .80	100	$ 1.20
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100	$1.00	100	$ 1.50
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The A. I. Root Co. - Medina, Ohio.

Get Good Queens and Bees---It Costs You no More

We furnish them on short notice. Untested, 75c each; $4 for six; $7.50 per dozen. Tested, $1.25. Breeders, $3. Nuclei, one-frame with queen, $1.50; two-frame, $2.00; three-frame, $2.50. Absolute satisfaction or no deal. We breed six pure races—price list describing them free. We are agents for the Dittmer comb foundation for this State, and all that are nearer to us than to him, at Dittmer's Prices. If you wish your wax worked up into foundation for cash we will receive same and furnish you the foundation from our stock, which will save you much time and freight.

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Select Untested	1 00	5 00	9 00
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Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

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Carniolans a Specialty ! !

ALSO breeders of Golden and Leather Italians. One untested queen, 75c.; six for $3.90; twelve for $6.00. Tested, $1.25. Best breeder, $2.50. Best imported, $4.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in United States or Canada. Descriptive price list free. :-: :-: :-:

Carniolans.—We have bred this race of bees for 20 years, and find they are among the gentlest bees known; very hardy and prolific, and the best of honey-gatherers, and work on red clover; great comb-builders, and their combs are of snowy whiteness.

Golden and Leather Italians.—Are gentle, prolific; swarm very little; hustlers to work, and are a red-clover strain.

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NOW READY

Root's red-clover and imported leather-color Italian queens. The best honey-gathering strains to be had at any price

August and September Prices

Untested, each.....$ .65; ½ doz., $3.75; doz., $7.00
Warranted, each.... .75; " 4.25; " 8.00
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A general stock of Root's Goods constantly on hand. Send for price list of queens and supplies. ::: ::: :::

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Untested queens, $ .75 each; six, $4.00; dozen, $7.50
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Safe arrival and satisfaction guaranteed.
Descriptive circular free. :: ::

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, MORGAN, PENDLETON CO., KY.

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Charles A. Myers, Leipsic, Ohio.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be a very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, 60c each; six for $3.30, 12 for $6.00. Free circular.

L. H. Robey, Worthington, W. Va.

HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

Our Syracuse, N. Y., Branch

is prepared to ship promptly all
Bee-keepers' Supplies, giving
the same discount as Medina.

The A. I. Root Co., Syracuse, N. Y.

F. A. Salisbury, Manager.

SEPTEMBER DISCOUNT

Ten per cent for Cash Orders;
Wholesale and Retail. See the
Notice in Gleanings, Page 934.

M. H. HUNT & SON, BELL BRANCH, MICH.

10 PER CENT DISCOUNT IN SEPTEMBER

We have arranged the following discounts for early

CASH ORDERS

this season:

Before	October 1	10	per cent
"	November 1	9	"
"	December 1	8	"
"	January 1	7	"
"	February 1	6	"
"	March 1	4	"
"	April 1	2	"

DEALERS.—A partial list of dealers (wholesale and retail) in Root's goods will be found on the first inside cover page of this issue. A list of local dealers may be had by writing us at Medina. Save time and freight by ordering of the dealer nearest you.

These discounts are intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about ten per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books and papers, labels, and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog. ... ...

THE A. I. ROOT CO.

FACTORY AND EXECUTIVE OFFICE

MEDINA, OHIO

BRANCHES

Chicago—144 E. Erie St.
Philadelphia—10 Vine St.
New York—44 Vesey St.
Syracuse, N. Y.
Mechanic Falls, Me.
St. Paul—1024 Miss. St.
Washington, D. C.—1100 Maryland Ave.
Havana, Cuba—Obrapia 14.
Kingston, Jamaica—115 Water Lane.

Agencies everywhere—see the first inside cover page.

BEE-KEEPERS' EARLY DISCOUNTS

Now is the time to send in your order for goods for use next season, and for all orders where cash accompanies we allow the following discounts: : : : :

Before October 1	deduct 10 per cent
Before November 1	deduct 9 per cent
Before December 1	deduct 8 per cent
Before January 1	deduct 7 per cent
Before February 1	deduct 6 per cent
Before March 1	deduct 4 per cent
Before April 1	deduct 2 per cent

Freight rates from Toledo are the lowest. Can take honey and beeswax in exchange for supplies if you desire. Send for free illustrated catalog. It describes and illustrates every thing for both poultry and bee keepers. . .

GRIGGS BROTHERS
523 Monroe St., Toledo, O.

Dadant's Foundation

It excels. We guarantee satisfaction. . . . .

Bee-supplies

of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII OCTOBER 1, 1905 Number 19

GLEANINGS IN BEE CULTURE

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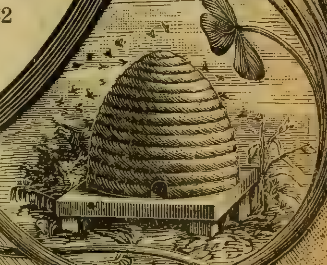


THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Root's Bee-keepers' Supplies at Convenient Distributing Points.

Well-known Dealers.

The dealers, whose names follow, are well known to bee-keepers. They have been, for the most part, long established in the bee-supply trade, and have a knowledge of the business most valuable indeed to the bee-keeping fraternity. Their advice may be had on any question of supplies, etc., for the asking.

The Large Stocks.

Nowhere else is it possible to find such well-assorted stocks of goods for bee-keepers as are carried by dealers in Root's Goods. No matter whether you require a little five-cent article or a carload of goods, these dealers can serve you promptly. Stocks are frequently carried amounting to $5000 and upward.

Shipping Points.

You will observe that these dealers have excellent shipping facilities—guaranteeing you quick delivery and low freight rates.

Medina Prices.

The prices, terms, discounts, etc., are identical with the home office at Medina (with rare exceptions). Full particulars may be had before ordering, if desired, by writing the dealer nearest you. You can, however, use our Medina catalog and terms, and, if any variation, your dealer will advise you, if requested, before shipping.

Other Dealers.

Besides the following list, there are many others who handle some of Root's Goods. The following is by no means complete for hundreds of dealers come to us for many of the goods of which we are the exclusive manufacturers. *Insist on getting Root's Goods.*

Local Dealers.

In addition to the following list who carry large stocks, and furnish at both *wholesale* and *retail,* we have in every State a large number of dealers who handle our goods exclusively. As there are over 500 of these dealers, space will not permit giving their names at this time; but information will be given by us, on request, to any bee-keeper regarding the dealer nearest him handling Root's Goods.

Colorado--Fruita Fruit & Produce Association, Fruita, Colo.

District of Columbia--The A. I. Root Company, Washington, D. C.

Georgia--Howkins & Rush, 124 Liberty St., Savannah, Ga.

Indiana--Walter S. Pouder, Indianapolis, Ind. Vickery Bros., Evansville, Ind.

Iowa--Joseph Nysewander, Des Moines, Iowa.

Illinois--The A. I. Root Company, 144 E. Erie St., Chicago, Ill.

Kansas--Carl F. Buck, Augusta, Butler Co., Kan.

Mississippi--George A. Hummer, Brazelia, Miss.

Massachusetts--F. H. Farmer, 182 Friend St., Boston, Mass. W. W. Cary & Son, Lyonsville, Mass.

Maine--The A. I. Root Company, Mechanic Falls, Me.

Maryland--Rawlings Implement Co., Baltimore, Md.

Michigan--M. H. Hunt & Son, Bell Branch, Mich. George E. Hilton, Fremont, Mich.

Minnesota--The A. I. Root Company, 1024 Mississippi St., St. Paul, Minn.

Missouri--John Nebel & Son, High Hill, Mo. Springfield Seed Co., Springfield, Mo. Blanke & Hauk, St. Louis, Mo.

New Mexico--Edward Scoggin, Carlsbad, New Mex.

New York--The A. I. Root Company, Syracuse, N. Y. The A. I. Root Company, 44 Vesey St., New York City, N. Y.

Ohio--McAdams Seed Company, Columbus Grove, O. Griggs Bros., 521 Monroe St., Toledo, O. C. H. W. Weber, 2146 Central Ave., Cincinnati, O.

Pennsylvania--Prothero & Arnold, Dubois, Pa. The A. I. Root Company, 10 Vine St., Philadelphia, Pa.

Texas--Texas Seed & Floral Co., Dallas, Tex. Udo Toepperwein San Antonio, Tex.

The following buy our goods in carload lots but supplement them with local-made goods.

Alabama--J. M. Jenkins, Wetumpka, Ala.

California--Calif. Nat'l Honey-producers' Ass'n, Los Angeles; Madary Planing Mill, Fresno, Cal.

Colorado--The L. A. Watkins Mdse. Co., Denver, Col.

Oregon--Portland Seed Co., Portland, Ore.

Texas--D. M. Edwards, Uvalde, Tex.

The A. I. Root Company, : Medina, Ohio.

C. H. W. Weber,

Headquarters for

Bee-Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Complete stock for 1906 now on hand. Freight rates from Cincinnati are the lowest, especially for the South, as all freight now goes through Cincinnati. :: :: ::

9% DISCOUNT

For Cash Orders Received in

OCTOBER.

This applies to all goods with exception of shipping-cases and other honey packages for current use. :: :: ::

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Toronto.—Prices are very much the same as last year at this time. Extracted honey is, if any thing, a little more plentiful, and just a trifle lower. Comb honey is decidedly more plentiful than it was a year ago, but prices are just about the same. Extracted, 7@8. Comb, $1.40@$2.00 per dozen. A splendid show of honey at the Toronto Industrial Exhibition this year, perhaps the best we have ever had—quality and quantity away up—every exhibitor being much cramped for room. A new building is expected for next year. W. Z. Hutchinson, of Flint, Mich., acted as judge. The attendance this year was greater than ever, 120,000 people being present one day. E. Grainger & Co.,
Sept. 22. Toronto, Can.

Buffalo.—Honey is selling pretty slowly here. The large amount of fruit in the market and weather pretty warm is the cause. Prospects are that honey will sell well a little later. We quote as follows: Fancy white comb, 13½@14; A No. 1, 13@13½; No. 1, 12½@13; No. 2, 11@12; No. 3, 10; No. 1 dark, 10@11; No. 2 dark, 9@10. Extracted white, 6½@7; amber, 5½@6; dark, 5@5½. Beeswax, 30@32. W. C. Townsend,
Sept. 19. Buffalo, N. Y.

Toledo.—The market on comb honey remains about the same as last quotations, with the exception that honey is being offered more freely, and the demand is a little better. We are getting in a retail way for strictly fancy white comb honey, 14@15; No. 1, 13@14. Extracted white clover, in barrels, 6@6½; in cans, 7½@8½; amber, in barrels, 5@5¼; in cans, 5½@6. Beeswax, 26@28.
Sept. 18. Griggs Brothers, Toledo, Ohio.

New York.—New crop is beginning to arrive quite freely from New York State and Pennsylvania, and is in fair demand at 14 for fancy white; exceptionally fine quality may bring 16; No. 1, 13; No. 2 and amber, 11@13; no buckwheat on the market as yet. Extracted is in good demand, and we quote California at 6@7½, according to quality; Southern, 55@65 per gallon; white clover, 6½@7. Beeswax, firm and scarce at 29@30.
Hildreth & Segelken,
Sept. 22. 265-7 Greenwich St., New York.

Atlanta.—The small amount of honey coming in is causing no inconvenience with us, as there is no demand for extracted and very little demand for comb. We quote you our market as follows: Fancy water-white comb, 12@13; A No. 1, 11@12; No. 1, 10@11. Beeswax, 28. Judson Heard & Co.,
Sept. 12. 110 So. Forsyth St., Atlanta, Ga.

Denver.—The demand for new comb honey is fair, and prices range as follows: No. 1 white comb, per case of 24 sections, $3.00@$3.25; No. 2, $2.75. Extracted white, 7@7½; light amber, 6¾@7. For clean yellow beeswax we pay 24c, delivered here.
Colorado Honey-producers' Ass'n,
Sept. 19. 1440 Market St., Denver, Colo.

Chicago.—The market in comb honey is not large, yet all really desirable lots of white are being taken at 13@14—only fancy at the extreme range is wanted. Extracted is in fair demand at 6@7 for white; amber, 5½@6. Beeswax is selling upon arrival at 28.
R. A. Burnett & Co.,
Sept. 20. 199 South Water St., Chicago, Ill.

Philadelphia.—There seems to be an unusually large quantity of comb honey offered in the market at this time, and prices for new goods are somewhat weak. We find small lots of bee-keepers in the vicinity are offering it at almost any price, regardless of the actual value. Honey has been sold in Philadelphia at the following prices during the week: Fancy comb, 13@16; No. 1, 11@14. Extracted, amber, 5½@6½; white clover, 6½@8. Beeswax, firm at 28. We are producers of honey, and do not handle on commission.
Wm. A. Selser,
Sept. 19. 10 Vine St., Philadelphia, Pa.

St. Louis.—Our honey market has not undergone any material change except that new extracted honey is still in very light supply with a good demand. We quote as follows: Southern amber, in barrels, 5½; in cans, 6; California light amber, 6½@7; amber, 6½@6¾ in five-gallon cans. There is no old extracted honey on this market at present, and comb honey is dull. Quotable for fancy white, 13@14; A No. 1, 11@12; No. 1, 9@10; broken and all lower grades, nominal.
R. Hartmann & Co.,
Sept. 18. 14 So. Second St., St. Louis, Mo.

Kansas City.—The honey market remains firm, and demand active at $3.00@$3 25 for 24-section cases; only arriving in local lots, but these are all sold as fast as they arrive; could sell more if we could get it. White extracted is selling at 7; other grades, 5½@6½. Beeswax, 28. C. C. Clemons & Co.,
Sept. 18. Kansas City, Mo.

Schenectady.—White comb honey is coming forward freely, and we have received some buckwheat. Both are of fine quality, and selling as follows: Fancy white, comb, 14@15; No. 1, 13@14; No. 2, 12@13; buckwheat, 11@12. Extracted white, 6½@7; dark, 5½@6. Most of the light extracted seems to be a mixture of basswood, clover, etc. Could sell some good clover to good advantage. Beeswax, 28@30. Chas. McCulloch,
Sept. 19. Schenectady, N. Y.

WANTED

FANCY COMB HONEY IN NO-DRIP SHIPPING CASES. ALSO EXTRACTED HONEY. IF YOU HAVE ANY TO OFFER, QUOTE US YOUR ROCK BOTTOM CASH PRICE DELIVERED HERE, AND MAIL US A SMALL SAMPLE OF THE EXTRACTED HONEY. WE BUY EVERY TIME THE PRICE IS RIGHT, AND REMIT PROMPTLY.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET, CINCINNATI, OHIO.

For Sale.—Extracted honey at 6 to 8½ cts.; sample, 10 cts. I. J. **Stringham**, 105 Park Place, New York.

For Sale.—2000 lbs. choice buckwheat honey in new 60-lb. cans, at 5c. Clover honey all sold.
G. A. **Bleech**, Jerome, Mich.

For Sale.—New clover honey in 60-lb. cans.
C. J. **Baldridge**, Kendaia, Seneca Co., N. Y.

For Sale.—43,000 lbs. of choice extracted buckwheat honey at 6¼ cts. put up in kegs holding about 160 lbs. each. E. W. **Alexander & Son**, Delanson, N. Y.

For Sale.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat.
G. H. **Adams**, Mill St., Bellevue, Schenectady, N. Y.

For Sale.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
Hildreth & Segelken, 82 Murray St., N. Y. City.

For Sale.—7000 lbs. new clover honey in 60 lb. cans; sample free. **Jas. McNeill**, Hudson, N. Y.

For Sale.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. **Hershiser**, 301 Huntington Av., Buffalo, N. Y.

For Sale.—12,000 lbs. new clover honey, comb and extracted; latter in five-gallon cans, one and five pound pails, and glass jars. State your wants, and we will quote a price that is right.
Quirin-the-queen-breeder, Bellevue, Ohio.

For Sale.—One ton each of dead-ripe clover, and fall or amber honey. Clover not quite as white as usual. Price 6½ cts. per lb. Amber, 6 cts. per lb. f. o. b. here, in 60-lb. square cans, 2 in case. Less than 5 cases ¼c more per lb. Sample free.
O. H. **Townsend**, Otsego, Mich.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up.
Chas. Koeppen, Fredericksburg, Va.

Wanted.—White-clover comb and extracted honey.
B. **Walker**, Clyde, Ill.

Wanted.—Light amber extracted honey. Please send sample. **Fred W. Buttery**, Rt. 43, Norwalk, Ct.

Wanted.—Honey in any quantity. State price, quantity, and quality. Address **Judson Heard**,
110 South Forsyth St., Atlanta, Ga.

Wanted.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
Evans & Turner, Columbus, Ohio.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. **Burnett**,
199 South Water St., Chicago, Ills.

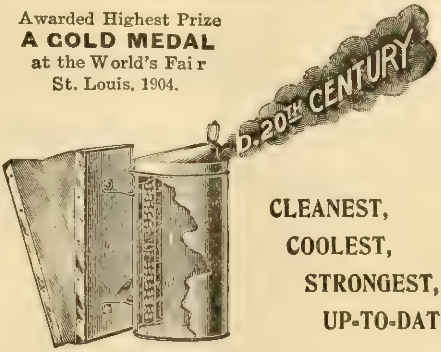
Wanted.—We are in the market for buckwheat honey, both comb and extracted. When writing be sure to tell how it is put up, mentioning the grade; if comb, No. 1 or fancy; and send sample if it is extracted. We do not want it mixed with other flavors.
The A. I. Root Co., Medina, Ohio.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St. New York.

Wanted.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
Thos. C. Stanley & Son,
Manzanola, Colo., and Fairfield, Ill.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

F DANZENBAKER, - MEDINA, OHIO.

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danz., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4 00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

Learn Telegraphy & R. R. Accounting

$50 to $100 per month salary assured our graduates under bond. You don't pay us until you have a position. Largest system of telegraph schools in America. Endorsed by all railway officials. *Operators always in demand.* Ladies also admitted. Write for catalog.

Morse School of Telegraphy,
Cincinnati, O., Buffalo, N. Y., Atlanta, Ga., La Crosse, Wis., Texarkana, Tex., San Francisco, Cal.

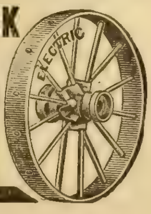
Water Problem Solved

Machine for domestic well-making. Cheapest by half; most practical of any. Catalog free.
Koger & Sons, Mooresburg, Tenn.

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon



Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.
Electric Wheel Co. Bx95, Quincy, Ill.

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 23,000. Reaches every State and sixty foreign countries.

Established in 1873. 52 pages, semi-monthly.

Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.

E. R. ROOT, Editor Apicultural Department.

J. T. CALVERT, - Business Manager.

A. L. BOYDEN, - Advertising Manager.

TERMS---$1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, In Advance.

Postage is Prepaid by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

A Few of Our Special Offers.

1. Sample Copy	Free
2. Six Months' Trial	$ 25
3. Gleanings one year, and Red-clover Italian Queen (June or later)	1.50
4. Gleanings one year, and A B C of Bee Culture (postpaid)	2.00
5. Gleanings one year, and Langstroth, revised, (postpaid)	2.00
6. Gleanings one year, and How to Keep Bees (postpaid)	1.75
7. Gleanings one year, and Standard Corneil Smoker (postpaid)	1.85

I will not be without GLEANINGS, even if it costs me $5.00 a year. EDWARD VIG, Wis.

GLEANINGS is ahead of any other bee paper I have seen yet—more practical, which suits me, for I have no time to waste on something not practical. MRS. ALMEDA ELLIS, Mo.

I find more useful information in regard to apiculture in GLEANINGS than in any other magazine; and I would not be without it, as, cut off from the outer world as we are, with no one to consult with, it is a great help to me, and has saved me many a dollar.
H. H. SMYTH, Hawaii.

Notices and Rates for Advertisers.

Column width, 2⅝ inches; column length, 8 inches; columns to page, 2.

Forms close 12th and 27th of each month.

Advertising rate, 20 cents per agate line, subject to either time discounts or space rate, at choice, BUT NOT BOTH.

Line Rates (Net)

500 lines @	18c
1000 lines @	16c
2000 lines @	14c

Time Discounts.

6 times	10 per cent
12 times	12 per cent
24 times	30 per cent

Page Rates (Net)

1 page	$40.00	3 pages	$100.00
2 pages	70.00	4 pages	120.00

Preferred position, 25 per cent additional.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in ten days, 2 per cent.

Reference required from all parties unknown to us.

SUBSCRIPTION CONTEST

25 PRIZES

1st Prize	$10.00 Red-clover Queen.
2d Prize	$7.50 Red-clover Queen.
3d Prize	$5.00 Red-clover Queen.
4th Prize	$3.00 Red-clover Queen.
5th Prize	$2.00 Red-clover Queen.
6th to 15th Prizes	Half-leather A B C.
16th to 25th Prizes	Standard Corneil Smoker.

Now is the best season of the year to obtain subscribers to GLEANINGS IN BEE CULTURE. For this reason we are inaugurating our First Prize Subscription Contest. We wish our friends everywhere to enter. We are making the prizes very liberal, and many of them, so that with but little effort you can get a reward over and above our regular commissions. It is easy to obtain subscribers among your bee-keeping friends. We make it still easier by supplying sample copies and advertising matter. If you decide to enter this contest, fill out the blank below and we will start you at once. We pay good commissions, which insures good pay for your work whether you secure a prize or not.

CONDITIONS

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between September 15 and December 31, 1905.

SECOND.—To be eligible to any of the first five prizes, contestant must have at least five yearly subscriptions, or equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—Contest closes December 31, and announcement of winners will be made in January 15th GLEANINGS.

FIFTH.—That subscriptions can be sent in any time, but must be plainly marked "For Subscription Contest."

SIXTH.—GLEANINGS reserves the right to reject an application when it would interfere with an agent already appointed in any one county.

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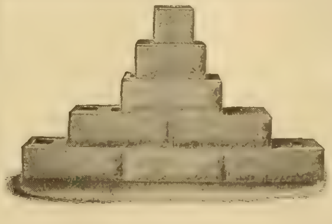

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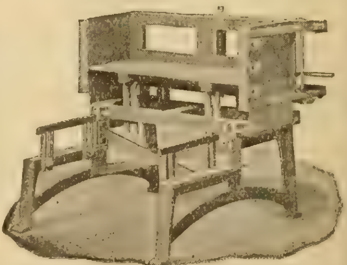

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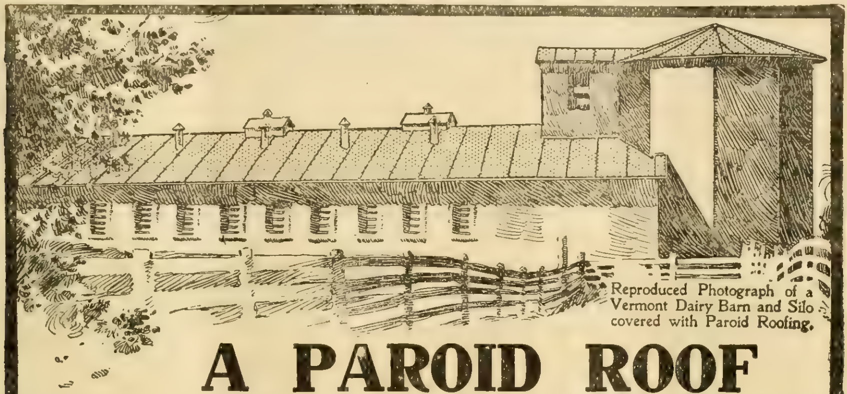

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GLEANINGS IN BEE CULTURE

A Journal Devoted To Bees And Honey And Home Interests

Illustrated Semi-Monthly

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Stray Straws

By Dr. C. C. Miller.

YE EDITOR, p. 961, expresses surprise at so much swarming with two or three story extracting colonies, which, he says, usually will not swarm. Allow me to suggest one thing that makes a difference — a big difference. Ventilation. With a good-sized entrance to each story, I should expect practically no swarming in this locality. Generally have a few such colonies, and not one has ever swarmed.

SHIPPING-CASES are spoken of by Bro. Doolittle, p. 970, as having glass on two sides. I supposed that nowadays shipping-cases generally had glass on only one side. How is that, Mr. Editor? [Shipping-cases were formerly made with glass on both sides by supply manufacturers; but in these latter days I think only one side is glassed. There are not many using double glass now, and very likely Bro. Doolittle is in the minority. —ED.]

THE QUESTION is raised, page 955, whether it might not have been all right to postpone the National convention at San Antonio till after the first frost. Granting that railroad rates would have been all right at that time, people don't get over a yellow-fever scare in a day; and the many who have decided not to go on that account Oct. 31 would take more than one frost to get them over the scare. At least that's the way it is "in this locality."

G. M. DOOLITTLE, page 970, says he ships his fancy and his No. 1 honey to two different houses, so the two can not be closely compared. But in that case he must be sure to ship his No. 1 where *no one else* ships fancy, for it would be just as bad to have the No. 1 compared with Smith's fancy as with Doolittle's fancy. But isn't that a difficult thing to do, since most commission houses receive at all times honey from any one who offers, and generally have on hand different grades?

"THE SHALLOW brood-nest, as Mr. Heddon so clearly explained years ago, offers exceptional facilities for getting all the bees off the combs without touching a single comb," page 960. Say, Mr. Editor, do you really make a practice of shaking all the bees out without touching a comb? [The word *all* should have been omitted. The mistake was overlooked in the proof-reading on my part. Of course, it would not be practicable to shake *all* the bees off the combs without touching *one*.—ED.

PROF. BIGELOW, p. 958, makes a strong plea for tanging; but when he's all through I'd like to know whether he really thinks tanging advisable. He says: "The noise is made *after* the clustering, in my experience, when the swarm has refused to go into the hive or to remain." Beg pardon, professor, I suspect the general experience is different from yours. Certainly, in any case I ever knew any thing about, the music began the earliest possible after the swarm was known to be issuing, and I never read of any different experience till I read of yours.

J. E. JOHNSON, p. 959, speaking of Hoffman frames, says: "If you get well-made combs to start with, and always shove them up tight, using the dummy, nobody can help liking them." Then I'm that "nobody," friend Johnson; for after fulfilling the conditions you specify, I most assuredly "can help liking them," and very much prefer frames with smaller points of contact. [Propolis is a factor to be considered. You have more propolis in your locality, I believe, than we have here; but if you had no more than we, I am sure you could learn to handle these frames as easily as we do ours.—ED.]

J. W. SOUTHWOOD files a protest against the impression left by the item headed "An Increase in Weight of Two Pounds in a Minute and a Half," p. 919. The surface impression is that during that minute and a half two pounds of nectar were carried into the hive. Mr. Southwood wisely hints that but a small part of that two pounds may have been nectar, being nearly all bees. Color is given to that view by the expression, "then a storm caught us." A sudden clouding up, an inrush of bees, and none going out, and there would be a rapid accession of weight, even though not a drop of nectar was coming in. [Mr. Southwood's point is well taken.—Ed.]

For late feeding, 2 parts of sugar and 1 of water, page 955, wouldn't it be just as well to have 2½ of sugar to 1 of water, as in A B C? Remember, it's *late* feeding. [There will practically be but little difference between the 2½ and 2. I merely spoke of two parts of sugar as being an easy thing to remember. If you will refer to late editions of the A B C I think you will find we prefer numbers 4 to 3 and 1 to 1. If there is a possibility of the bees ripening it I should prefer to give the thinner syrup. Years ago, when we had the 2½ proportion, we had a good deal of sugar go into crystals in the combs; but in later years we use nothing stronger than equal parts, and feed early.—Ed.]

As having a possible bearing on the paper-section question, p. 959, I may mention that I have had, from Germany, I think, a sample of paper queen-excluder, the paper appearing to be so treated that bees would not gnaw it. But even if cheap enough to be used for queen-excluders it might be quite too expensive for section boxes. [I can not conceive of any kind of paper excluders that would for all time resist the gnawing on the part of the bees like zinc. When it comes to a matter of sections, there is urgent need of a cheaper material because of the *quantity* of lumber required. But in the line of excluding-boards the amount of material used is very small comparatively, and that material will last a lifetime; hence I can see no advantage in trying to cheapen queen-excluders by trying to use some other material than zinc.—Ed.]

Editor Root is of the opinion that farmers or beginners should have a frame that will space automatically and exactly right, p. 954. Yes, and so should others, at least until they have had 40 years' experience, or more. Mr. Hutchinson, page 953, seems to think he doesn't need automatic spacing, for he has in his "mind's eye" a ⅝ measure which he uses "when putting the frames in the hive, just as the self-spacers would use nails driven into the sides of the frames." Now look here, friend Hutchinson, I suspect I have spaced more loose-hanging frames than ever you did, and probably had as good a ⅝ measure in my mind's eye; and one of the things that I *know* is that I can't begin to work that ⅝ measure with the same rapidity nor with the same exactness as the spacing-nails. You say it often happens that the ability to make a variation of ¼ inch is an advantage; to which may be added that much oftener it is a disadvantage.

It dazed me when I read, p. 964, that if dead bees would not clog the entrance you would prefer an entrance, Mr. Editor, not more than one inch wide and ¼ high, for outdoor wintering. That would be only ¼ of a square inch, and I had supposed that would be entirely too little. But your experience greatly exceeds mine, and I am thankful to be corrected. Now, if such a small entrance is desirable providing it can be kept open, how would it do to have it two or three inches above the bottom, giving plenty of room for the dead bees to fall to the floor without clogging the entrance? [Having the entrance a little above the bottom might help the matter somewhat; but not having tried it I suspect that a good many bees would come to the entrance and become chilled, dying because of their low vitality. I feel very sure of this: We need no more entrance than will allow of the slight renewing of the air and the egress of certain bees whose diseased condition would be a menace to the well ones or to the stores left in the hive. I am of the opinion that stores soiled with dysentery have a tendency to bring on dysentery on the part of bees that would otherwise be healthy if they could have clean stores.—Ed.]

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

Look out now for the colonies that need feeding. A great many, especially of the new swarms, will need help or they will starve this winter.

It is sometimes a real misfortune for a man to have two or three good seasons at his start in bee-keeping. He is building on a false foundation. It takes several years to find out what an average is in bee-keeping. When disaster comes, as it is sure to sooner or later in the shape of a poor season, he is not as well prepared to meet it as if his earlier experiences had been less flattering.

AMOUNT OF HONEY TO THE ACRE.

The amount of honey that an acre of honey-producing plants may yield is a very interesting subject that has been guessed at a number of times; but since it is difficult to get any accurate data on which to base the estimate, the results have not been very satisfactory. A recent attack on the problem from an unusual direction is at least interesting. This is contained in "Bee-products in Arizona," a part of Bulletin 51 issued by the Arizona Experiment Station. Their results "were obtained by selecting typical plants or areas, estimating the number of blossoms, and determining the sugars in samples of average flowers." They calculate by this method that a medium tree of mesquite may produce 2.53 lbs. of honey; a medium bush of catclaw .36 lb., and a large bush of *Acacia constricta*, apparently a near relative of the catclaw, .39 lb. An acre of alfalfa in full bloom is estimated to produce 55.9 lbs. This, it is stated, corresponds roughly to the "farmer's estimate" of a can of honey (60 lbs.) to the ton of hay.

A serious flaw in the table is that it does not state definitely whether the estimate is on the amount of honey actually in the blossoms at the time the calculation was made or whether it is an estimate of the season's yield based thereon. Apparently, though, the former is the case when it becomes evident that the estimate must be much too high, since the amount in the blossoms at any given time is much less than will be secreted during even the short time that alfalfa is allowed to remain in bloom. It appears that we are at liberty to guess again.

The Arizona bulletin contains some other items of interest. The analysis of nectar showed that the proportion of cane sugar ranged from one-twentieth to five-eighths of the invert sugar; while the analysis of a number of samples of honey showed an average of about one-fiftieth as much cane sugar as invert sugar. This confirms what we have been told by other good authority, that nectar does not become honey until it has been transformed by the bee.

Two of the samples of honey contained an abnormal proportion of ash. This is accounted for by the fact that they are desert-flower honeys, the bloom of which, growing close to the dusty ground, became charged with dust, which the bees could not entirely remove from the nectar.

Comparison of Arizona honeys with averages of analyses of Eastern honeys, made by the Department of Agriculture, show that the Arizona honey contains considerably less water and a larger percentage (about seven per cent higher (of invert sugar than the Eastern honey. If this would hold true of the Colorado honey, it would, perhaps, account for the unusually solid granulation of our honey.

It is stated, however, that the alfalfa honey produced in Arizona is darker than that made in more northerly localities. Why this should be is not clear, though it will be remembered that some have claimed that honey produced in very hot weather was darker than that made when it was cooler. Arizona, I believe, is the hottest State in the Union. Experiments were made in liquefying granulated honey, tests being made with a number of samples heated to different temperatures. The conclusion reached was that any temperature over 130 degrees changed the color and flavor, and that any thing over 160 was injurious.

THE NATIONAL NOMINATIONS.

When I nominated O. L. Hershiser for President I neglected to state that he has twice been honored with the position of Vice-president. Logically, he is not only fitted for the higher office, but, according to precedent, is deserving of it. I am not going to make any more nominations, but will call attention to several men who would fill the very important office of Manager acceptably, in my opinion. No one could reasonably find any fault with the present Manager and the way in which he has conducted the business with an eye to the best interests of the Association; and the only possible reason for electing any other would be that he has already been burdened with the somewhat onerous duties of the office for the past two years. If it came to making a choice elsewhere, my preference would lie between two men — Mr. C. P. Dadant, the present Vice-president, and Mr. Frank Rauchfuss, who has already been nominated. Both of these are sound, clear-headed business men who have made a success of their own business, and could be depended on to look properly after that of the Association. Besides being a successful business man, Mr. Dadant is clear-sighted and broad-minded, and could be relied on to take that comprehensive view of things so necessary for one in that position. Ever since coming to this State I have had my eye on Mr. Rauchfuss as a man who was not as well known in the bee-keeping world as his merits warrant. Though modest to a degree, he is eminently well fitted for a position like that of Manager of the National. His able management of the Colorado Honey-producers' Association shows that he has the qualities needed in the business head of the National.

DIRECTORS FOR THE NATIONAL.

Although there is nothing in the constitution about it, and though the Association would probably be quite as well governed by men selected without any reference to location, custom and general sentiment recognize the fact that members prefer to be represented on the Board by a man from their own State or locality, and there is a growing tendency to elect a man from the same State as the man he succeeds. Would it not be well to recognize this fact, and make it more systematic by dividing the country into as many districts as there are directors, basing the size of the district on the number of members therein? For instance, if there are 2400 members, each 200 members would be entitled to a director to be selected from their district. If a State contained enough members, it would constitute a district. In the case of States having but few members, several adjoining States could be grouped together to form a district.

OUTDOOR FEEDING.

I have done a great deal of outdoor feeding for stimulative purposes, and have always considered that, whenever this form of feeding was at all possible, it was much to be preferred to any other method. Not only is it far less labor than feeding by ordinary methods, but it does far more good. Feeding outside more nearly approaches the conditions of a natural honey-flow than the feed that is given to the bees in an unnatural way and generally at an unnatural time.

To make it profitable, of course one must own all or nearly all the bees in the immediate neighborhood. How far away another lot of bees must be in order that they may not take too much from your feeders depends somewhat on the method of feeding. If you feed only enough to keep the bees busy for a short time each day, bees that are only half a mile away may not find it for some time. But if the feeding lasts for any considerable time, they are liable to find it sooner or later, even if they come from several times that distance. I always considered it better to feed so that the bees were employed most of the day carrying it to their hives. This is secured by thinning down the feed so that the bees do not take it so eagerly. Many are afraid to feed outdoors for fear of inducing robbing. This may be prevented in two ways—first, by putting out enough feed so that all the bees can readily find it and help themselves. The other way is to thin down the feed until the bees no longer get excited over it. A very small amount of feed may thus be made to keep busy and contented the bees that at times make so much trouble by pouncing down on every colony as soon as its hive is opened.

In outdoor feeding I have found just one serious drawback aside from the expense of feeding your neighbors' bees. This came to me very forcibly one morning in May after the bees had been working a week or more in the feeders. The day began with a cold drizzling rain so that I did not put out feed as usual. What was my surprise and disgust, though, to find that the bees came out after it just the same as usual. They hovered around the feeders until they became wet and chilled. Bees were scattered all over the ground, and festooned over every thing near the feeders that would support them, until many thousands of them perished. The losses from that source probably came near balancing the good done by the stimulative feeding. The loss of bees probably would not have been so great if the feeding had been done under an open shed so that the feeders would have been sheltered from the rain. If this had been done, especially if the feed had been kept warm, the bees could probably have made their way through the rain without much loss.

❧

FOUL BROOD.

Adrian Getaz, writing in the *American Bee Journal*, says that the chief difference between foul brood and bee paralysis is that the first is a rapidly developing disease, and the other a slowly developing one. One might as well say that that is the chief difference between smallpox and malarial fever. As some humorist has said, their chief resemblance is that they are so awfully different. While it is true that foul brood is a rapidly developing disease as regards the individual bee, it can hardly be considered as developing rapidly with regard to the colony. A good colony attacked by foul brood will usually live two seasons, unless the intervening winter is a severe one. This slowness of development of the disease in its early stages, sometimes almost disappearing for a time, sometimes makes a great deal of trouble for the bee-inspector, as the bee-keeper is sometimes inclined to think the inspector has made a mistake in his diagnosis, and so neglects to do any thing for the infected colony.

❧

KEEPING OVER COMB HONEY.

Some have inquired of me how the honey came out that I held over from last season. Early in August I had a good offer for this honey, so I sold it, with the exception of several cases which I still have, and some of which I may keep another year for experiment. This honey was in first-rate condition when sold. A few sections containing the later-gathered honey showed slight granulation, especially around the edges where the later honey was placed; but nearly all of it was absolutely without granulation, and none of it was bad. Out of sixty cases, less than half a case was granulated to any extent. Owing to the scarcity of honey this season it sold at a fancy price, and holding it over paid a very handsome profit. Of course, this could not ordinarily be counted on; but in any case it would not have been subject to any discount on account of its age. Some of this honey formed a part of my exhibit at our county fair, and bee-keepers who were invited to pick it out from what was produced this year confessed their inability to do so.

This is an important subject, and I shall refer to it again. Colorado bee-keepers have lost a great deal of money on account of the premature granulation of their honey, and it is subject to a discount in some markets because of this tendency to granulation. This may be avoided by proper care. Always store your honey in a dry, hot, well-ventilated place. You will notice that I say "hot" instead of "warm." I find that what most people consider a warm place is not warm enough for honey. Keep it as near 100 degrees as possible.

[I wish to indorse every thing Mr. Green has said in favor of both candidates for the important office of General Manager of the National. Both men are splendidly fitted for the position; but there is a strong doubt in my mind whether either would accept the nomination.

Regarding the candying of alfalfa comb honey, Mr. Green has possibly struck on something of more than ordinary value when he recommends that honey kept over be stored in a room not only warm but hot, up to 100 degrees Fahr. The question might arise whether at some season of the year the fuel would not overbalance the extra price of the honey.—Ed.]

Editorial
By E. R. Root.

THE grading-rules will probably have a thorough overhauling at the next National convention in Chicago, Dec. 5, 6, 7.

IN our next issue we hope to have two articles, with suitable illustrations, on how to winter bees outdoors in single-walled hives with little or no expense for outside protecting-cases. The poor seasons generally over the country have made economy a matter of more than ordinary importance.

CORRUGATED pasteboard for shipping-cases has been tried by J. A. Green; and from a private letter from J. E. Crane, Middlebury, Vt., I learn that he has been making some experiments that are very satisfactory. He has promised to write an article a little later, telling why bee-keepers and supply-manufacturers should substitute a yielding material for the unyielding drip-sticks.

IMPORTANCE OF FEEDING EARLY.

IF your bees are not already fed, you had better see to it at once. Of course, one can feed late, and use thick syrup; but the results are not as satisfactory as a thinner syrup fed earlier. The bees can ripen it in nature's way, so it is a fitter feed for the long winter's sleep; but, what is of considerable importance, they can make a winter nest in the combs.

"ADVANCED BEE CULTURE."

I HOLD in my hand the advance proof-pages of this new work in press, by W. Z. Hutchinson, editor of the *Bee-keepers' Review.* If the pages before me are any sample, the work has been very largely revised, bringing in some of the latest suggestions and ideas that have come to the front. Mr. Hutchinson is a careful and conservative writer, and at the same time he is well posted in all the latest developments that have been made in the subject of bee culture. The book is designed primarily for the advanced bee-keeper, and hence its name; but it may be read with profit by the beginner class in connection with other works written especially for the novice. No statement is made as to what the price of the book will be, or whether or not it will be larger than before. Due announcement, however, will be made at the proper time.

"SWARMING OUT" AT THE HOME OF THE HONEY-BEES.

SOME of the friends may wonder why Mrs. Root and myself should go back to Ohio, and, after such a brief stay, come right back to the cabin again. Well, it was because our youngest, Huber H. Root, was married to Miss Mabel Knisely, of Butler, Ind., on the evening of Sept. 6. They are now off on their "honeymoon." We have invited them to stay in the "old hive," but they have consented to do so only temporarily. They seem to have agreed on a smaller home, perhaps not even "eight-frame," and I don't know but some sort of a "nucleus hive" will be their idea for the present. A big hive (or a big house) is too much care and responsibility) for the "gude wife." Thus you see The A. I. Root Co. promises to have timely accessions of young brain and muscle. Huber is just in time to make the connecting link between the children and grandchildren, that are rapidly coming of an age to "notice things."

Huber has been helping Ernest in the editorial work, as well as making some improvements in the bee-supply line. Already two patents have been issued to his name, and other minor improvements have been made to various devices sold by The A. I. Root Co.—A. I. R.

The following appears in the *American Bee Journal:*

> Mr. Huber H. Root, youngest son of Mr. A. I. Root, was married, Sept. 6, to Miss Mabel Knisely, of Butler, Ind. Our heartiest congratulations to "Huber," who has evidently done so "Knisely" in a matrimonial way, and also to "Mabel," who is now so well "Rooted." They will be "At Home" in Medina, Ohio, after Oct. 15.

Here is what the *Bee-keepers' Review* had to say:

> Huber, the youngest member of Mr. A. I. Root's family, is now a married man. On the 6th of this month he and Miss Mabel Knisely, of Butler, Indiana, joined hands and fortunes, and will make their home at Medina. Huber is a bright, energetic, agreeable young man, and, unconsciously, makes friends for himself and the Root Company wherever he goes. The *Review* wishes him and his young bride a long, happy, and useful life.

DR. SALISBURY AND THE SERVICE HE RENDERED TO E. R. ROOT YEARS AGO.

THE picture of Dr. J. H. Salisbury, as shown elsewhere in this issue, brings vividly to my mind the time when I used to go to see him, a trifle over thirty years ago. I was a lad then twelve years old, all run down, and so deaf from a sort of chronic earache that it was with difficulty I could hear any one talk, even when he yelled. My parents took me to this eminent physician, and almost his first order was, "Don't let any ear doctor tinker with his ears. That boy is young yet, and with proper treatment he will outgrow the difficulty with his ears." I was put on the meat diet, and in the course of two or three years my hearing was perfectly normal, and is to-day, notwithstanding over thirty years have intervened. I have some friends who have had various ear doctors tinker with their ears; and the more they have been tinkered, the greater the difficulty in hearing.

I know this is outside of bee-keeping; but my experience may be useful to some other sons of bee-keepers who have been troubled more or less from earache and chronic colds. I thoroughly believe that Dr. Salisbury saved me a world of discomfort, for it is an *awful* thing to see people talking in an animated conversation, see the lighting-up of the countenances, and occasional laughter, and yet know nothing of what has been going on. The world laughs and talks. You see it, but hear it not. I have been there; and now, thanks to my old friend who has left this world, but who, fortunately, left his teachings, I am able to enjoy the use of my ears as well as other people.

Dr. Salisbury's treatment was nothing more nor less than to drink copious amounts of hot water before each meal and just after getting up, eating a little cereal and lots of beefsteak. Every mother knows that a growing boy needs strong nourishing food, and that is precisely what I got. I had plenty to eat before, of course, but it was not of the kind to develop strength and muscle to supply the constant drain due to colds and chronic catarrh.

Some of our older readers know how in later years nervous prostration came on; and the same treatment, administered by Dr. J. M. Lewis, Rose Building, Cleveland, Ohio, restored me to health.

SPECIES AND VARIETY.

In Mr. Doolittle's department in this issue he makes some statements in regard to "varieties," "pure stock," and "thoroughbreds," that, unless understood, may lead to confusion of terms. Species includes a large class of varieties of bees. *Apis mellifica*, or *Apis mellifera*, as now seems to be preferred, is a species that takes in varieties like Italians, Cyprians, blacks, Carniolans, Caucasians—in fact, all the races of bees that so far have very much commercial value. *Apis dorsata* belongs to an entirely different species. Mr. Doolittle speaks of Italians as being a "variety," or a "thoroughbred," and the inference is that black bees are not a variety. In one place he says Italians "are not a fixed type," and yet in another place he calls them "thoroughbreds." Under the word *thoroughbred* (as you will see in the Standard Dictionary) we find "a breed kept pure for many generations." According to this, Italians can hardly be "thoroughbreds" and "not a fixed type." Either our correspondent is unfortunate in the use of his terms or I do not understand him. I do not bring this up to criticise, but to make sure we do not get mixed up in our terms.

Regarding the five-banders, I agree with Mr. Doolittle that there is a strong demand for them; but the bees of this type that we have had any experience with were very cross. Our north yard had many of these bees; and our boys often remarked that this was the "hardest and *meanest* yard" to handle that we have. The imported Italians that we have had any experience with have been decidedly of a fixed type, of a leather-colored order, showing three yellow bands; always gentle, fairly good workers, and hardy. We found by experience that it is easy to get extra-yellow bees out of Cyprians or Syrians, but very difficult to get any sport in color out of the typical imported from Italy.

WINTERING BEES OUTDOORS UNDER A DEEP SHALLOW CAP OR COVER.

Mr. Vernon Burt wintered very successfully last winter his 300 colonies outdoors. The arrangement seemed so simple and so cheap that, if I did not positively know Mr. Burt's veracity, I would not give the matter even a single thought. The plan is, in brief, this:

Early in the fall he sees that his colonies are well supplied with sealed stores. He uses the Danzenbaker hive; and if the cluster can be crowded into one section, one section is given. If they require two, of course they are allowed to have them. The same super-cover that is used to cover the super for comb honey is put on top of the brood-nest. This the bees seal down hermetically. On top of this cover are placed several thicknesses of newspaper laid out flat. On top of the paper is placed a shallow chaff-tray containing chaff or any other equally good packing material, to the depth of three or four inches. The paper sticking out in all directions is neatly folded down around the sides of the hive. Over the chaff tray, and fitting snugly against the paper folded against the inner hive, is crowded a deep telescoping cap made of ⅜ lumber, with a tin roof. The actual packing material on top is some four or five inches thick. The sides of the hive are protected by the folds of paper and the outer case. This outer case comes down to within about one inch or so of the bottom-board. As the heat naturally rises inside of the hive, there is no need of making a double-wall bottom-board, nor of protecting the bottom edges of the hive.

Undoubtedly the several thickness of paper are a good deal more than equivalent to the same thickness of chaff or any other loose packing material. The air in the folds of the paper is shut in almost air-tight, and therefore it does not find means to escape, causing a too rapid radiation of heat.

We have used here for years outside winter cases, but there is a space of an inch or more between the outer and inner walls, this space being packed with chaff or planer-shavings. Of course, it is necessary, with an arrangement of this kind, to have a cover that will telescope over the winter case, otherwise it would be impossible to get the packing material around the sides of the hive and on top of the inner cover. But it always made a big litter every spring when we proceeded to "unpack." If the paper packing used by Mr. Burt is equally good it will save some expense, save litter in the spring in unpacking, and, what is more, the telescope case will be worth its entire cost one season, Mr. Burt estimates, to protect the comb-honey supers cool nights in the summer time, when the bees would otherwise desert the sections. Mr. Burt estimates, therefore, that the winter cases are equally valuable both in summer and winter.

"THE GOOD SEASONS WILL COME AGAIN."

THE following editorial in the *Bee-keepers' Review* contains so much good sense that I am glad to place it before our readers with a hearty amen:

> I have a most sensible letter from a subscriber in one of the Southern States. He writes rather discouragingly in regard to his location, saying that there have been repeated failures, year after year, and in two years he has fed twenty barrels of sugar to keep the bees alive.
>
> In former years he had harvested crops that were phenomenal, and was able to rear queens continually from March to October, with no feeding at all. Now all this is changed. He says the question with him is, shall he go somewhere else? Upon investigation he says it has been found that nearly all localities have periods of failure, the same he is now experiencing. He has about concluded that nothing may be gained by changing. If the same kind of honey-producing plants are present in large numbers. as those that furnished the big crops of the past, I think I should stay by them. Along in the nineties we had very poor honey crops here in Michigan—so poor that I came as near being discouraged as I ever did. I began to feel that, as the country was being cleared up, the honey-plants were disappearing, and that the good crops were things of the past and not of the future. In this I was mistaken. The last three years have furnished excellent harvests. As reported recently in the *Review*, one bee-keeper near here secured, last year, nearly 100 lbs. of comb honey, per colony from 60 colonies, spring count. Taking the country as a whole, it appears as though the crop for this year will be a light one, but Michigan is furnishing a good crop. And so it goes That is, the good seasons come and go; and, unless the plants have been destroyed that furnish the honey, unless the conditions have been radically changed in some manner, I think it doubtful if it is wise to change localities because of a few years of failure.

ANOTHER COMB-HONEY CANARD RETRACTED; THE DUTY OF BEE-KEEPERS.

SOME time ago there appeared in the Denver *Post*, one of the leading dailies of the West, the old statement about manufactured comb honey. The local bee-keepers, I imagine, immediately wrote their protests. At any rate, Mr. A. S. Parson, President of the Arkansas Valley Honey-producers' Association, took the matter up vigorously by letter. Failing to get a satisfactory response he wrote again, and received a very nice letter from the managing editor, stating he did not blame Mr. P. "for having feelings, and a whole lot of them, and expressing them pretty strongly." He further added that, if Mr. Parson would write an article of about 500 words, explaining the general facts about honey, he would place it on the query page. The result was a full correction, with a strong black heading, "Comb Honey Can Not be Manufactured," and a double-column denial below.

I suspect the thing that carried weight was the fact that Mr. Parson was the *president of a honey-producers' association*. His protest carried with it the implied protests of all the membership back of him. In nine cases out of ten I believe local bee-keepers can secure retractions if they will either go in person or write, and politely request the privilege of replying.

The trouble is, the average bee-keeper will send such items to the editor of a bee paper, which is all right so far as it goes, and stop there. He should not only do this, but he should at the same time send in a courteous denial to the editor, and then follow it up with a personal interview if possible. This is a duty that the secretaries and presidents of the various bee associations or honey-producers' associations, if you choose, should take up promptly, writing the protest on the official stationery of the organization.

The A. I. Root Co. always writes to all these papers; but we are often ignored or turned down, possibly because the managing editor thinks we have an "ax to grind," or that we are one of the alleged manufacturers of comb honey, and are trying to cover up our own misdeeds; but when he is addressed by an official of a bee-keepers' association he sees the matter in an entirely different light, and is more inclined to give the protest or denial a reasonable consideration.

DID A COG SLIP? MORE THAN ONE LARVA IN A QUEEN-CELL.

MR. PRITCHARD called me out to the yard one day this week to see something he had found. He pulled out a frame containing what appeared to be laying-worker drone brood. There was nothing particularly remarkable about that. He then showed me a queen-cell that actually contained nine big fat grubs, presumably all of them drone larvæ. We opened up other queen-cells, and found from three to five larvæ in each.

Very possibly this thing has been reported in these columns; but if so I do not remember it. Evidently nature has made a mistake, or a "cog has slipped" somewhere. We have had numerous reports of bees building cells with one drone larva in it; but here is a case where there is a decided plurality of them.

HANDLING HOFFMAN FRAMES IN THE FALL.

AT this time of year propolis is unusually abundant, sticky, and, in cool weather, hard. In separating the frames, enter the end of the knife or hive-tool between the *points of contact* of the frames—that is, between the square edge of one frame and the V edge of the opposing frame. Push the blade down, then give it a slight twist. If the hive-tool be entered between the top-bars, there is a possibility of splitting off either the V or square edge of one of the frames. Before the middle of September, and after March or April, when the frames are handled the most, Hoffman frames may be separated in any old way without danger of breakage.

A CORRECTION.

AFTER the first footnote on page 1032 was printed, A. I. Root sent in some corrections. He meant to say, in the middle of the note, that he "*usually* has an attack" of his old trouble; also that, "*as a rule*," he eats fruit and other things that other people do, while in Northern Michigan.

GENERAL
CORRESPONDENCE.

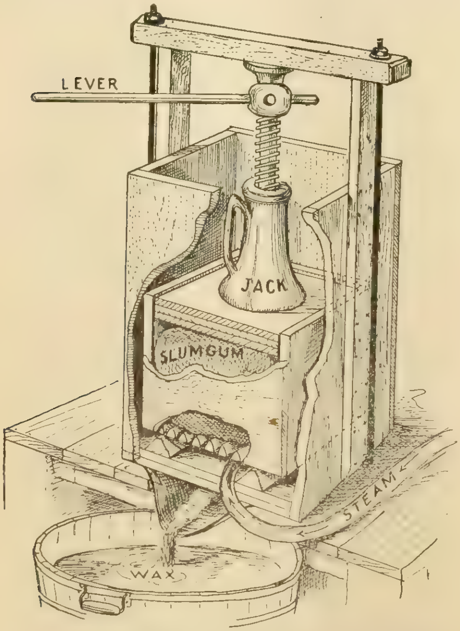
RENDERING OF OLD COMBS BY STEAM.

How to Get the Wax from a Lot of Foul-broody Combs; a Home-made Steam Wax-press.

BY LESLIE BURR.

For the rendering of wax, if you have but a few pounds, almost any way will do; but if you have a few thousand pounds it is a different thing. To start with I will tell how the bulk of the combs from about 800 foul-broody colonies were handled, and also the bees.

The yard was gone through, and every comb that did not contain brood was taken away, the honey extracted, and the combs cut out of the frames (no care was taken in working the colonies nor in extracting, as they all had foul brood, and time counted more than care). Hives were then made ready, the frames fastened, using starters on only the center frames, as full sheets of foundation would have to be used later. It was useless to use foundation as starters when full sheets would be needed later.



A SERVICEABLE HOME-MADE WAX-PRESS.

We then started in and shook bees all day. In the evening the colonies were loaded on carts, and the next morning taken to a new location several miles distant. The brood from the colonies that were shaken was stacked up over colonies that were either queenless or had the queens caged. When this brood hatched, those colonies were shaken and the bees moved to the new location.

This way of handling foul brood is not new or original; but the way of cooking the combs and pressing the slumgum was.

The combs were cooked with live steam in an ordinary barrel. The steam was conveyed to the barrel through a hose. The pressure averaged from 60 to 80 pounds, and a barrelful of combs could be cooked in less than 15 minutes.

The wax was then dipped from the barrel, and strained through a wire screen, which was nailed on to the bottom of a super, into large tubs, in which it was possible to make cakes weighing from 100 to 150 lbs.

The slumgum was dumped into a sack, the sack put into a barrel, and the steam-hose thrust into the sack, getting it as hot as possible before putting into the press. The cut will give you an idea as to how the wax was separated from the slumgum. The power was a jug-jack, and the steam-hose was for a persuader. The two combined got every particle of wax. The box or basket which held the slumgum had for the sides and bottom a heavy gravel-screen. The plunger on which the jack rested was made of several pieces of boards with the grain crossed. The machine was set on a platform about 2½ feet high. An apron was fixed to catch the wax and run it into a tub.

As to the value of the press, it was found that, on an average, 40 per cent of the wax from those old combs came from the press. When you do not have steam, the next best way is to make a fire-place out of doors. Have a large can for cooking; and, after straining, run the slumgum through a German wax-press.

In cooking old combs, always use plenty of water, and it is also a good thing to have a quart or so of water handy to douse into the boiling wax when it takes a notion to boil over.

A CHEAP PRESS FOR A SMALL AMOUNT OF WAX.

For those who have but a small amount of wax each year the simplest way to handle it is to make a strainer and press combined. To do this, take a comb-honey super and fasten a wire screen over the bottom; and to strengthen it, use several pieces of heavy wire. Telegraph wire is about the right size. Now take a piece of plank; cut it to fit inside of the super. With an inch auger bore a hole in the center of it, and into this hole fasten a pole two or three feet long.

You are now ready for business. Put your strainer over a tub. When you have accumulated two or three quarts of slumgum in the strainer make use of the plunger. To get out the last of the wax you will have to stand on the plunger with both feet. Take hold of the pole, and rack it back and forth.

In this way you can get just about all of the wax, although sometimes it is best to dump the slumgum back and cook it and press it a second time.

Another thing is to have a hole near the bottom of your tub, with a plug in it. This is to let off the water from the bottom. By so doing the size of your cakes of wax is limited only by the size of the tub.

TO GET CAKES OF WAX WITHOUT CRACKS.

The way to get large cakes of wax, and have them free from cracks, is to have the wax all cool at the same time. The only practical way to do this is to dip the wax from one tub into another. If a little care is used in doing this, perfect cakes of wax can be obtained up to almost any size.

Casanova, Cuba.

[Mr. Burr has, I believe, suggested the best practical home-made wax-press that has yet been submitted to our readers. The use of a jackscrew in connection with a suitable frame, a box to hold the slumgum, makes a very simple and cheap outfit. Our artist, however, has failed to show a cross-arm, against which the screw engages, sufficiently heavy. It should not be smaller than a 4×4 oak cross-piece; and the inner box to hold the cheese or slumgum should be well bound around the sides with strap iron. The jackscrew is a powerful machine; and when the enormous pressure it is capable of exerting on the plunger-boards is applied, the cheese is quite liable to spread out sidewise, bursting the box unless it is made very secure. Otherwise the illustration is fairly correct.

Perhaps the average bee-keeper may feel that this outfit will not be available for his use, as he would have no steam-boiler at his command. Let me suggest to all such that they load the wax-press and a load of combs into a wagon, and drive to the nearest steam-boiler. An arrangement can doubtless be made with the owner of the boiler to furnish steam at a nominal price. Common garden hose will answer for conveying steam from the boiler to the press.

The advantages of steam over hot water, for this purpose, are so very decided that one should by all means use it if he can. But failing in that he can heat the slumgum in a kettle of hot water, dip it into a burlap sack, and quickly put it under pressure. After it has been squeezed until no wax runs out, he can put it back into the water and cook it again, and give another squeeze with the press.

I wish to say here that the jackscrew has a great advantage over the ordinary carpenter's vise-screw, in that, the moment pressure is released by turning the screw down, the whole screw can be lifted out of the way for the easy removal of the pressure-board and cheese, for time must not be wasted in getting the hot slumgum under pressure.

Mr. Burr discovers that the press will secure 40 per cent of the wax over and above that rendered out in the old way. We found the percentage was even higher. Any bee-keeper who thinks he can get along without a wax-press is, in my opinion, burning up or throwing away good dollars.—ED.]

* * *

HIVE-TOOLS.

Many Tools Not Needed; Don't Waste Your Time Scraping; Leave That to a Cheaper Hand.

BY F. C. HOCHSTEIN.

Oh, my! here comes my friend Burr scraping into a Cuban apiary with an old putty-knife. Well, I declare! I thought better of him. I thought he was an up-to-date bee-keeper; but the apiarist in Cuba who goes scraping around with an old putty-knife is certainly a back number who does not value either his own time nor that of his employer very highly. Come, friend Burr, stop robbing yourself or your employer with that putty-knife. Hire a little nigger boy at 20 cents a day; turn over your old putty-knife to him; give him an old bee-veil full of holes The holes will let the bees get in on him. Keep him moving; let him do your scraping; don't work for 20 cents a day yourself. Let us do away with that putty-knife. The bee-keeper has no need of it. First, paint all the edges of your bee-hives and the bottoms of your covers with carbolineum. This does away with all the sticking of these parts; then use a Hochstein cover, a properly made one, 26 inches long, not like those you have been using here in Cuba, 24 inches; that extra two inches makes as much difference on these covers as two inches would on a man's nose.

In the summer season I shove these covers front as far as I can. This takes all the rain drip over beyond the bottom-board entrance.

In the winter, or during the honey-flow, I shove the cover over the back of the hive as far as possible. This gives quite a projection, and gives you a leverage that the bees can not build brace-comb enough to the cover but that you can easily pull it off with one hand—no need of a putty-knife.

The only tool an apiarist needs is a Coggshall brush with a Hochstein point to it (see the point). That point is a 40-penny wire nail driven into the handle of the brush. Leave about 1½ inches sticking out, then file off the head and file it to a point like a scratch-awl. It is the only tool—keep it in your right hand always.

Now let me take you out into the apiary and show you how I work it in a good honey season. First I take the machete away from my 20-cent nigger and hang a small tin pail in its place. This is for the wax scraps. My helper takes the wheelbarrow and the smoker—nothing less than a four-inch smoker will do. I need nothing more than my Coggshall brush with the Hochstein point in my right hand. Now we are ready.

With my left hand I take hold of the corner of the cover; pull it off and give it a hard sudden jar on its opposite corner on the ground in front of the hive; this dislodges every bee; then I throw the cover upside down behind me to that 20-cent nigger, and if there is any scraping to be done he does it; and when I get through with the hive he slaps it on.

While I was taking off the cover my helper has blown a stream of smoke across the top of the frames, so the instant my hands let loose the cover the frames are ready for me. With that Coggshall-Hochstein brush I pry out one frame; brush the bees back into the hive through the opening made by the frame, and put the frame of honey into an empty case on the wheelbarrow. This is all the brushing of bees there is to be done—one frame in each hive. The next frame is pried sidewise until you can get your thumbs behind it; then lift it out, tilt it backward until the top-bar points to the ground; then from about a foot above the hive strike with the frame a sharp hard lick on the back edge of the hive, and every bee will go down on to the top-bars of the lower story. The rest of the frames are used the same. You want to be particular to strike the frame on the end-bar just as close as possible to the projection of the top-bar. or, in other words, make the blow come where the Root Company puts the staple in the Hoffman frame. It may sound as though this would be hard to do; but with little practice one can almost do it without looking. Of course, your frames and covers want to be well made and nailed. As to scraping out brace-comb, etc., from the hive-body in a honey-flow, that is utter foolishness—a waste of time. An empty frame will always go back into a place vacated by a full frame.

I don't ask you to adopt any of my methods, but I am always willing to give any one the benefit of what little I know, especially young fellows and new comers. Do try a 20-cent nigger next season to do your scraping. Besides being a great saving to the bee-keeper, it gives one a millionaire feeling to have a little nigger following him up to do his scraping.

Now in regard to that Hochstein uncapping-device, I am not the father of it. That is a get-up of my son; but as I use it in my three apiaries I suppose that I belong to that class of bee-keepers who know very little about practical bee-keeping.

From what you say about this uncapping-machine I am sure that you never used one; or, if you did, you probably got some wood-butcher to make it—one of those men, I mean, who are born to carry the hod; and you know a good thing badly made is worse than none at all.

You say you have never seen any place where it was necessary for you to put knives into water to uncap with. Of course you have traveled a great deal, but there may be a few small places yet left where you have not been.

If you will go to Putnam County, Fla., during a good orange-bloom you will not only find it necessary to put your knives into water, but will have to have it hot at that. I may be mistaken, even in this; and you may even there be able to do without water, for I have seen men extract, without even uncapping.

Punta Brava, Cuba.

WINTERING BEES IN THE CELLAR.

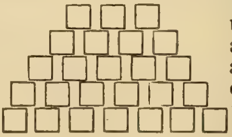
Do Not Use Smoke, nor Jar the Hives so as to Break the Cluster; Keep Them Quiet.

BY W. S. GROW.

After reading in the March 15th issue of GLEANINGS so many different opinions by different bee-keepers in regard to cellar wintering, mid-winter flights, etc., I think giving my experience in cellar wintering may not be out of line. My bee-cellar consists of a small portion of the house cellar partitioned off in one corner with two thicknesses of inch lumber. It is made mouse and rat proof, and very nearly air-tight. The size of it is 12×14 feet by 6 six feet high. It contains at present 150 colonies of bees which are wintering very finely. I am an advocate of the tight bee-cellars with no ventilation, with all rays of light shut out, making it absolutely dark.

I will say right here that my success in wintering is largely due, if not wholly, to very careful handling in the act of placing the bees in the cellar. I strive to get a day some time during November, when the mercury stands from 28 to 35°, with snow on the ground, as I always use snow to stop the entrances if possible.

About the first of November, I take a day when the hives are not frozen down to the bottom-board. I go to each hive, and, raising the front end carefully, I place a large-sized tooth-pick under each front corner, which keeps the hives from being frozen down when I come to carry them in. In carrying them into the cellar I place two colonies on my bee-johnny, or carrier, bottom-boards and all, so as not to disturb the bees. Then my hired man and myself carry them to the cellar very carefully, keeping step so as not to jar them. When we reach the cellar they are picked from the bottom-board and tiered up thus, five high.



The same cover is used in both summer and winter. By the accompanying plan we do not even break the cluster or disturb them. I never use any smoke in putting bees in. In fact, I never have any occasion for it. On the other hand, if I had put my bees in as the most bee-keepers do, with a rush, using a block 2×4 or something else to stop bees in with, and bang around the hives and wake them up out of their pleasant dreams only to glut themselves with honey, etc., I should expect, about the last of February, to see polka-dot hives (which gives the practical apiarist a cold chill), and bushels of dead bees that died with dysentery, making the only salvation for the apiarist a mid-winter flight for his bees, which comes a good way from being a cure, but the best thing, probably, that could be done in such a case.

Bee-keepers in general are not aware of the small amount of air that bees need when in the cellar, if they were properly put in and the mercury doesn't get above 48°. I have known of this being done in cellars where the temperature ran high for a few days before the bees were set out in the spring: suspend a cake of ice in the center of the bee-cellar, and set a wash-tub under to catch the drip. Of course, if the cellar were very large it would not amount to much. You have to supply ice and empty tub as the ice melts. I was in my bee-cellar yesterday, March 21, and could not see a spot on a hive, and not dead bees enough to half cover the floor one bee deep.

Italy, N. Y., March 22.

[This article came so late last spring that we deemed it best to hold it until the wintering subject would be more seasonable, and hence it is given now. The plan of piling hives one on top of the other, or, rather, one hive over the space between the two bottom hives, is the one used by H. R. Boardman, and which is in general use by many bee-keepers who winter without bottom-boards. It gives a large amount of ventilation, and a chance for the bees to drop out of the way, away from the cluster or combs.

But I believe our correspondent is wrong when he advocates "tight bee-cellars with no ventilation." While *he* may be able to get along with such a cellar, the great majority would meet with severe losses. If the temperature can be controlled so it does not go above 45 to 48, as Mr. Grow states, nor below 40, one can get along with little or no ventilation. I am aware that opinion is divided on this point; but in nearly every case where no ventilation is advocated, I discover that the temperature is under control.—ED.]

PERTINENT NOTES ON IMPORTANT SUBJECTS.

Why Hives Should Not be Ventilated at the Top.

BY E. S. MILLER.

Dr. Miller asks, p. 756, "What makes you think bees don't like to see daylight through the top of the hive?" Well, my belief is based chiefly upon the behavior of the bees themselves. I have observed, in the first place, that both natural and "shook" swarms frequently, if not generally, abscond if placed in hives with large openings at the top. In the second place, if the openings are not so large as to prevent it the bees will seal every thing up tight with propolis. An opening above is apt to admit rain and sunshine, both detrimental to the welfare of the colony. It is, however, not so much a question of daylight as it is of maintaining a certain nearly constant temperature necessary for comb-building and for the rearing of brood. This temperature within the brood-nest, Mr. Doolittle tells us, p. 427, is between 92 and 98°. The temperature outside, during the latter part of the night, is, even in July, quite cold — colder than most people are aware of, and the warm air within the hive, being lighter, rises and passes off more readily than in a hive open only at the bottom. If open at both top and bottom, it is still more difficult to maintain a constant temperature, as there will be a draft through the hive, increasing with the lowering of the temperature outside, and decreasing in the daytime as the temperature approaches that within.

HOW TO PREVENT BEES FROM ABSCONDING.

In answer to this, I will enumerate the following conditions which appear to me to be among the most important:

1. Shade.
2. A hive body and cover with sufficient thickness to prevent a too rapid escape of heat.
3. No large openings above.
4. A reasonably clean hive; no fresh paint or odors distasteful to the bees.
5. A good-sized entrance — say ⅜ inch by the width of the hive.
6. I find that bees are less apt to leave if hived on foundation starters than if given either full sheets or drawn combs. If the above conditions are observed, not one per cent of "shook" swarms will try to escape, provided the queen is in the hive. If one is still afraid of their leaving, cut a piece of queen-excluding zinc one inch wide, and tack it over the entrance, removing it in three days. I believe that nine-tenths of the failures with "shook" swarms are due to the fact that the queen is either killed, lost in the grass, or removed with the brood. Don't shake bees outside of the hive. Don't set frames down behind or at the side of the hive when loaded with bees unless you know where the queen is. Don't remove brood without shaking or brushing off *all* the bees.

E. W. ALEXANDER'S PLAN OF CONTROLLING SWARMING.

This summer I have been testing Mr. Alexander's plan of increase; and were I to judge by this season's results alone I would predict that this is the process that is destined to come into general use among practical bee-keepers, replacing natural and "shook" swarming. His article in the April 15th number will be worth to me the subscription price of GLEANINGS for a good many years to come. I have tried the plan with about thirty colonies alongside about an equal number of shaken swarms and perhaps twenty natural swarms.

Those in which Mr. A.'s plan was used are far ahead of the others, both in the amount of honey stored, to the present time (July 20) and in the success attending manipulation. The shaken swarms come next, and the natural swarms are poorest of all. I never saw colonies so strong, nor saw them work more energetically through the clover season. Did they swarm later? Well, two or three did, but so also did half a dozen of the natural swarms that came out in May and the early part of June. Even some that were hived on starters are swarming again now.

There are a few things, however, not mentioned by Mr. A., that should be kept in mind. One of these is that the brood, when put up, should be carefully examined and all queen-cells destroyed; otherwise the young queens, hatching before the ten days are up, are liable to squeeze through the zinc and lead off a colony.

Another thing to remember is that, when the brood is put up, queen-cells will usually be started at once in the upper hive, and will be nearly ready to hatch when taken off in ten days. All but one of these must be removed or they will swarm. Better still, destroy all of them and give them a laying queen.

One feature of this plan worth considering is that, if you wish no increase but an exceedingly strong colony, you can destroy the cells in the upper hive, and leave it on until ready to extract.

When the brood is put up, the super should be placed on the top, not between the two hives, or the cells will be filled with pollen.

GOOD FOR QUEEN-REARING.

Mr. A.'s plan offers an excellent opportunity for raising queens. When the brood is put up, take a frame with a cell-bar and wooden cups, and graft larvæ from your best breeding queen. Place this frame in the upper hive. In ten days, when you take off the top hive these cells will be all right to put in the Titoff cages to hatch. I find it convenient to keep a nursery frame of these cages in some hive where one can dispose of surplus cells, and where queens can be found when needed.

HOW TO LOOK FOR QUEEN-CELLS.

Before manipulating bees in swarming time it is advisable to look through the apiary to ascertain which colonies are preparing to swarm. If modern hives are used, no special contrivance is necessary in examining for queen-cells. Just puff a little smoke in at the entrance, and with the hive-tool (a good ⅞-inch chisel is best) pry up the hive in front. Then pick up the hive, super and all; set it forward on the bottom-board, and tip back until it stands up on end. If movable frames are used they may now be turned like the leaves of a book, and examined all the way up. With the Hoffman frames it is not quite so easy; but it can be done if the division-board is left out. The rim on the bottom-board prevents mashing bees; the hive bridging over, as it stands on end, prevents the bees from getting out at the back and making trouble; and the super, having a firm support, has no tendency to fall off. The only difficulty comes when the hives get too high and too heavy to handle. An assistant is then needed. Shove the hive forward one inch to avoid killing bees, and let one man tip back the hive from behind while the other turns the combs. In the swarming season it is necessary to examine as often as once in five days, or some swarms will be sure to escape.

Valparaiso, Ind.

[This method of leafing over the combs from the bottom as we would the leaves of a book I do not remember to have seen described before. Here is a good argument in favor of the unspaced frame. Nearly all the bee-keepers I visit use fast bottoms so that the hives may be always ready to move, either to shift about the apiary or to move to outyards and into the cellars, so that this plan would be impracticable.—ED.]

AN EXPERIENCE IN HIVING SOME BEES.

The Knack of Knowing How.

BY MRS. BEE.

Well, I suppose I'd better "bob up" serenely and tell our little experiences and the fun we all had helping our neighbors catch their swarms of bees.

About 11:30 one morning in the latter part of May, while my "wayward pardner" (true sometimes) and I were proudly discussing our brand-new "yellow kids" (the bees from the Italian queen we had such a time introducing, p. 767) one of our neighbor's little nieces came rushing breathlessly up to the office door and exclaimed:

"O Mr. Bee! come quick! Grandma's bees have come out of the coop, and part of them have climbed way up a tree! Auntie wants you to help her get them down."

I was nearly blue in the face laughing over the coop idea; but we flew out of our office and down to auntie's, merely stopping *en route* long enough for veil and gloves.

We couldn't miss sport of that kind. The bees were nearly in the top of a tall maple; but it would never do to hesitate, so the "gude mon" nobly shinned up the tree, and with the aid of a bucksaw (such a handy tool to use in a tree!) and a jack-knife managed to butcher through the limb. The two aunties had a sheet on the ground, but the limb was high up and too small to risk much weight on, so it made a wide sweep and spilled some of the bees in the grass, much to one auntie's dismay, but they soon got with the rest.

But this fair maid, in her anxiety to get every bee where it belonged, got their feelings injured, and our absorption in our task was rudely interrupted by a "war-whoop" from her, and we looked to see her dancing frantically around one corner of the house, clutching at her hair and shaking one foot wildly around.

None of us went to her rescue, however. We knew she would deal gently with them, as she was so afraid some would get lost in the grass. Mr. Bee got them hived beautifully, and they started to work at once, and now have a ten-frame hive two-thirds full of comb, honey, and brood.

The amusing part of these bees is, they were the girl's mother's, and that dear old lady carefully watched them through April and nearly all of May, and finally concluded they were not going to swarm, and went on a little visit; and the very day she left they swarmed!

They had but the one colony in an old box hive, and the girls told me laughingly they were very choice expensive bees. The mother has six or seven grown-up children, and the girls said mother got each of them to give her a dollar to get the bees with.

The colony cost but one dollar, yet mother got at least six dollars to buy them; and yet people prate of "foxy grandpa."

The very day after this, Sunday at that, another neighbor had a swarm. He is a young man with three old colonies, all in box hives, and he came after Mr. Bee to help him. He said, plaintively, he *had* put them in the hive, but they wouldn't stay in. We hurried over there, Mr. Bee getting his veil, and the young man's mother whacked off a piece of the netting she covered her dining-table with, and draped him gracefully with it. These bees had gone to the other extreme, and were lovingly clustered in a bunch on a chicken-fence. The never failing sheet was called into action, and my "pardner" and his Coggshall brush soon had them safely hived. This colony has since done splendidly, nearly filling their ten-frame hive. He has put his swarms in the dovetailed movable-frame hives.

The two swarms we bought of a neighbor have excelled all others around, but we gave them, for the most part, full frames of foundation. My own individual colony is the best for old black bees, having a ten-frame hive full of bees, comb, and honey, and two sheets of extracting-frames in the super pulled out. I have sent for a golden Italian queen for this colony, and am daily expecting her. Our three other colonies have nice queens recently introduced—one a golden Italian, whose bees are old enough so they work in the field, and the other—a red-clover queen at present still in her cage in the hive, and a tested three-bander, out July 11, and laying to-day, July 13.

There has been but a very poor honey-flow here—a little fruit-bloom early that cold rains mostly ruined, and about a week of white clover. But the golden Italian's bees are such hustlers that they go out in the rain to hunt honey; and when introduced to her present family there were but about four frames of bees. Her first bees hatched June 6; and now, July 12, she has nine fully covered frames, and eight of these are full of eggs, brood, and hatching bees. She has more honey in her hive than the others—sealed honey—and lots more eggs. Her bees are pretty, but not so yellow as those we saw in East St. Louis, so I tried for yellower ones for my colony. Of course, we want honey; but, aside from that, we love the bees; and if Spanish needle fails to make much honey my colony shall have all the sugar syrup it needs to winter on.

Another of our friends has a colony he has been expecting to swarm since April, and on our way home one evening I said to him, "Bees swarmed yet?"

"Naw!" he said, so disgusted. "I told my wife if they didn't swarm soon I was going to kick the blamed old gum over."

It doesn't seem hard to hive swarming bees. I know I could do it. All Mr. Bee has hived have gone in without trouble, and stayed there, and no one was stung.

But it may be like bread-making. I was not taught to cook before I was married; and as I watched my good old mother-in-law mixing bread I said to myself, "Hump! any dunce could do that." But some of the bricks Mr. Bee ate under the *name* of bread a year or so later, when we went to housekeeping, convinced me there was more to it than "a simple twist of the wrist and the way you hold your mouth." And so it may be with bees and swarms.

I wish to tell, another time, of some transferring from box to movable-frame hives, and also some dividing of colonies, and the consequences.

Ladue, Mo.

A TEST OF THE ALEXANDER PLAN OF INCREASE.

Also a Test of the Nucleus Plan.

BY F. L. DAY.

Last spring, when I read in an April number of GLEANINGS, page 425, the plan of Mr. Alexander for securing both increase and honey at the same time I was much interested. Here was what I had been looking for, but did not expect to find inside the lines of the bee industry—a double crop of honey and 100 per cent increase of colonies. If not, indeed, a short and easy way to fortune, it was at least something approaching it. I selected four colonies of medium strength, having prolific queens, to test the scheme. April 22 the queen and one frame of brood and bees was taken from each of colonies Nos. 7, 9, 12, 13, and then placed in an empty hive under the brood-nest, with a queen-excluder between the two stories. To this one frame of brood and bees had been added nine good combs, some of them having a little honey. On June 1st, in the forenoon, I took the upper stories from the four hives and carried each to a new stand, intending to give them ripe queen-cells in the afternoon. Coming out from dinner about one o'clock I was just in time to see the first swarm of the season. It was from the lower story of No. 12. I was just in time to catch the clipped queen. I examined what had been the upper story of No. 12. It had a lot of queen-cells, some of them almost ready to hatch. Two of the other upper stories also had queen-cells. Here was 75 per cent of swarming, actual or anticipated, at nine days from preparation of colonies—not very encouraging.

June 7, what had been the upper story of No. 12 sent out a swarm; also No. 7. Here were three swarms before any of the colonies which had not been divided at all had given a single swarm. From this inauspicious beginning, both upper and lower stories, the whole eight of them continued to swarm until all but one lost or killed its queen. They did good work, though, gathering honey. To count the original colonies, giving each one credit for what honey its new colony made, the result was as follows: No. 7, 125 lbs.; No. 9, 75 lbs.; No. 12, 110 lbs.; No. 13, 145 lbs., or 455 lbs. in all.

I now wish to compare briefly these results with those obtained from three colonies which I devoted to increase by the nucleus plan. Three colonies were increased to 15, and 425 lbs. of honey obtained. Here was 141⅔ lbs. per original colony, while the Alexander plan gave only 116¼ lbs. per colony. The nucleus plan gave 300 per cent more increase, and about 22 per cent more honey, than the Alexander plan. Both produced extracted honey; but the latter plan has merit, and I shall try it again.

Becker Co., Minn.

[But we have had some very favorable reports from others. See what E. S. Miller says in this issue. Perhaps you did not carry it out correctly. Will Mr. Alexander please tell us where the trouble lay?—Ed.]

MOVING BEES TO PREVENT SWARMING.

A Modification of the Sibbald and Danzenbaker Plan; a Suggestion that may Have much Merit.

BY O. R. BOSTOCK.

In the foregoing article I explained how I change the positions of hives when moving them to a new location. Since writing that article Gleanings for April 1 has come to hand, and it contains an editorial explaining the Sibbald non-swarming plan.

After reading and considering the matter it seems to me that it would be better to carry out this work with groups of hives instead of single ones. Suppose, instead of one hive, we have three standing close together. When swarming is expected, we come along some time during the day when the field bees are absent, and carry all the hives away to a new location. In place of the group of three hives we now set down one hive containing one frame of brood, the rest empty combs or starters. This new hive will now receive all the field bees from the three old ones, and should make a much better showing than if it received the bees from only one. All agree that, the more bees we can get together, the better. There will be no stinging, for all is confusion for a time at finding their homes gone and only an empty hive there instead. They will, perforce, all chum up together when night comes on, and by morning will have settled down contented in the new home.

Last spring I desired to obtain some of the new season's honey for exhibition at a fair. In this case I moved the hives up into groups of three, and then carried two away. The one colony left became in each case very strong.

The season was a total failure for honey. The expected flow did not arrive until too late, and then these strong colonies being left to themselves threw off the largest swarms I ever saw. In three cases the swarms were so large that they completely filled a bushel measure.

It seems that this system could be carried much further with decided advantage. We will suppose that all the hives have been drawn up into groups of three. When swarming is expected we go to group No. 1. We find that all of them are preparing to swarm. Accordingly all are removed and carried away to a new location where they are set down side by side again. A single prepared hive is left on the site they were taken from.

We now proceed to group No. 2. On examination we find that two of the hives are preparing to swarm, and that the third one is not. In this case we should smoke the latter well, and place it in the center of the group, if not already there, and carry the other two away. The smoke would prevent fighting, which is never bad at swarming-time, for the bees are too busy with the flowers to have much time for fighting. This hive will now be even stronger than that which replaces No. 1, for one entire hive remains instead of only its field bees.

This hive could be counted on to start preparations for swarming very shortly, so that it also would need to be moved in, say, ten days or two weeks. Bearing this fact in mind when moving other hives, after a lapse of two or three days I would set down two others near it, and then at the time for the second move the three could be worked again together.

At group No. 3 we might find that only one colony was preparing to swarm. In that case it would be better to cut out the queen-cells from that one and give some of the brood from it to the other two; then at the next visit the three would all be in about an equal condition.

In this locality swarming is the great trouble. It is natural that they should swarm, and they will do it. They swarm for about four months. Last year I spent days and weeks cutting out queen-cells, and it was little better than wasted time. If one cell is missed (a very simple thing to do), all is undone. I am sure the moving would give much better results, and not be a quarter the work. They would, as you say, think there was a famine in the land, and cut out the cells themselves.

Of course, the old hives would soon swarm, if left to themselves, after the first shift; therefore when moving I would set them down again in groups of three. As soon as they were again getting ready to swarm, say in ten days or two weeks, I would move all three away the second time, putting an empty hive on the second location, and so the process would go on. The plan would require considerable judgment to make it a success, but I think it could be carried out.

The new hives which stand where groups had been must not be forgotten. With so strong a force of bees they too will soon think of swarming. If given only a queen-cell each they may keep quiet for a month. I should reckon, however, that, after two weeks, when moving other hives, it would be well to set down on each side again, making a group in the place where we first started, to be again moved on in its turn when the proper time arrives.

Whenever a hive is found to be queenless, that would be the one to leave on the old stand, supplying it with either a queen or a cell.

In carrying out this plan it would be absolutely necessary to keep some record of the dates when changes were made, so as to know when to look for the next change being needed. I should say a pocket diary would be best; also, on making a change, to enter the numbers of the hives on a page ten days or so ahead; then when that day arrived the operator could look up the condition of those hives mentioned. This would be more satisfactory than searching on back pages to find out when certain changes were made.

I should like to know what you think of my plan. I would remind you that, years ago, Mr. Danzenbaker, in his little book, Facts about Bees, advised us to move away strong hives and place swarms on their stands, and so get the advantage of all the flying bees from the old hive as well as the bees of the swarm. We seem to have forgotten that our ways are not new, but that they have been recommended over and over again in slightly different ways.

One objection that could be raised against this system is that one could never tell which colonies produced the most honey. That would make no difference to one who did not breed his own queens.

Fernhill, Napier, New Zealand, June 15.

[As you have probably seen since we published the details of the Sibbald plan, we tested it in our outyard and did not find it entirely satisfactory, owing to the fact that the bees manifested a strong tendency to go back to their old hive, even after the positions had been reversed. Your plan would obviate that trouble entirely; and I am of the opinion that it would stop the swarming, destroy cells, and make a tremendous working force of bees. The only objection I can see is that it involves a large amount of work, lifting and carrying heavy hives, even in the midst of the honey-flow, not one or two feet, but quite a distance away. I should be glad to have suggestions and criticisms from those who have tested the Sibbald plan this season, and especially from those who may have tested something similar to this.—ED.]

SWEET CLOVER.

More Proof that Stock will Eat it.

BY A. C. ARMSTRONG.

I wish to take exception to the statement, page 904, that stock will not eat sweet clover except under compulsion. A neighbor who has a small place, 13 acres, and who works on the railroad, raked up a lot of it that was cut (about the time it began to bloom) along the tracks, for bedding for his horse and cow. He put it in a stack, three or four tons of it, and bedded both the horse and cow; and, to his surprise, they ate it greedily, and left good clover and timothy hay in the manger for the sweet-clover bedding.

Along the roadside near my place there was a lot of sweet clover growing, and the highway overseer caused it to be cut, raked up, and ordered it burned. I saw some manure in it, and hired a team to haul it on to my land. We had four good big loads of it. I put it on a poor sandy knoll in the pasture lot. There were 15 head of young stock and my cow in the 35-acre field, and they had good feed, but they left grass to eat the roadside sweet clover, and they ate it clean—stalks and leaves.

I cut a little of it this summer with other grass, and fed it to my horse, and he will pick it out of the other grass; and I have noticed the horse sort it out of alfalfa, as I have fed my horse alfalfa all summer, cut fresh daily, and there is some sweet clover mixed in it.

I have also tried to seed some of the 35-acre pasture-field to sweet clover for my bees, and sowed about two bushels of seed two years ago. It came up nicely, but the stock ate it all off so short it has not blossomed.

Since Aug. 1 I have given up the pasturing of stock. The clover is starting up, so I have some late sweet clover for my bees, and they have found it. May be it's the locality. Kansas alkali soil produces a plant so strong that it can't be eaten, while York State does better. Different soil will produce onions of different strength, and why not sweet clover?

On our soil I would as soon have sweet-clover hay, pound for pound, as alfalfa. I have known of two instances where parties have bought alfalfa seed that was badly mixed with sweet clover, and they had no difficulty about feeding the hay. When it is cut early it makes first-class hay.

Warner, N. Y.

[When I read the first line or two of your article I wondered how it could be that I allowed a statement that stock would not eat sweet clover to go in our columns unchallenged. On referring to the page in question I find the statement was made by Professor Richards, botanist of the Kansas Experiment Station; but it was in no sense indorsed by Mr. Green, who merely exhibited it as a sample of inexcusable ignorance on the part of a man who ought to have known better. The average reader of a bee paper knows that stock will eat sweet clover, and consequently Professor Richards' statement needed no denial. We have had any amount of proof that stock will eat it when it is cut early enough. This only goes to show that the National Bee-keepers' Association, the Honey-producers' League, and the various State bee-keepers' associations, should take measures to secure the repeal of the laws in the various States classing sweet clover as a noxious weed, and therefore to be cut down by the street commissioner or road supervisor. The time will come, of course, when these laws will be repealed, but not until bee-keepers bestir themselves a little more actively than they have been doing. The majority of our experiment stations, I think, are on record as saying that sweet clover is an excellent fodder; that it is not a noxious weed; that it grows only in waste places, and is always killed out by cultivation.

The trouble with some farmers is that they are a little in the position of the dog in the manger. If they imagine that their neighbor bee-keeper derives some benefit from a certain plant, or from their alfalfa or clover fields, they feel that they have been robbed. When they see bees working on sweet clover they want it cut down, and therefore are instrumental in getting it recognized as a weed.—Ed.]

THE LESSER WAX-MOTH; INFORMATION WANTED.

U. S. Department of Agriculture,
Bureau of Entomology, Division of Apiculture,
Washington, D. C., Sept. 13.

Mr. E. R. Root:—It has come to my notice that the lesser wax-moth, *Achroia grisella,* has been found in this country, and I am anxious to learn how widely it is distributed. I shall appreciate it very much if any of the readers of your paper who have any specimens of this moth in their apiaries will notify me of that fact and send samples of either larvæ or adults. I shall be glad to send on request a return frank to any person wishing to mail any specimens to me, which will make it unnecessary to pay postage. In order that this moth may be distinguished from the common wax-moth, *Galleria mellonella,* I will give a brief description.

The adult moths are little more than half the size of the common moth, and with wings spread they measure about ⅝ inch. The fore wings are considerably darker than the hind, and a very characteristic feature is the swiftness of movement of the insects. The tunnels are similar to those of the common moth, but smaller in diameter, and the cocoon at the end in which the pupa is found is considerably smaller. Wherever found in America they are due to importations, since this is a European species. Bee-keepers need not fear this moth any more than the larger one, for it is well known that there is one sure prevention for moths; and the rule of every bee-keeper, whether troubled by moths or not, should be, "Keep all colonies strong." This will, of course, not keep the moths away from stored combs. This moth is also said to thrive well in dried apples. There is an excellent illustration of both bee-moths in the A B C of Bee Culture, p. 54, but the name is misspelled in the text.

E. F. Phillips,
Acting in Charge of Apiculture.

H. G. QUIRIN.

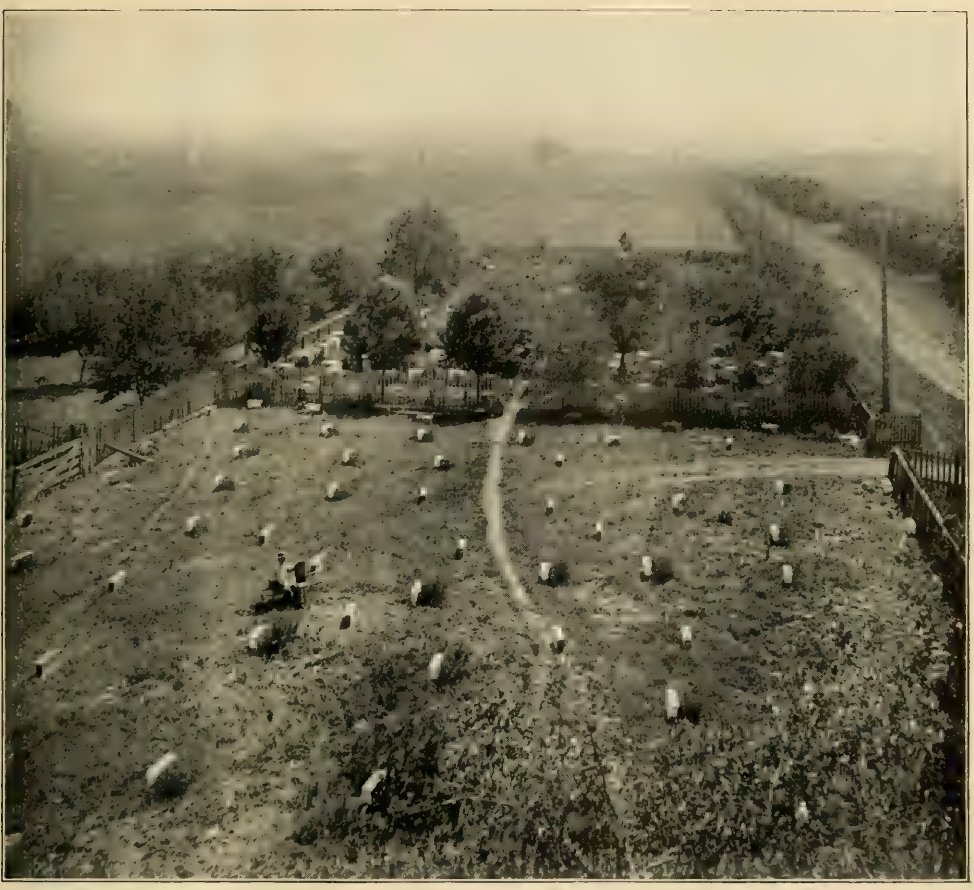
The Queen-breeder, Honey-producer, and Supply-manufacturer.

BY E. R. ROOT.

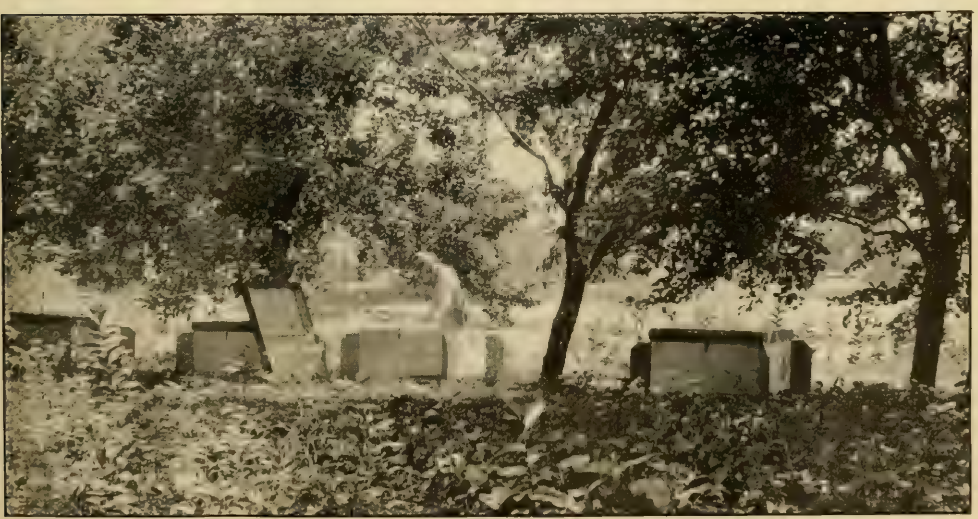
I suppose it is hardly necessary for me to introduce H. G. Quirin to our readers—the man who has advertised so extensively, and who lives at Parkertown, near Bellevue, O. Some two or three months ago an extended write-up of him and his business appeared in one of the Cleveland papers. Some of the statements of the reporter were reasonably correct; but when he came to figure out Mr. Quirin's earnings for a year he made them so big that it threw the alleged profits of Standard Oil clear into the shade. Raising queens and producing honey was, according to the reporter, the greatest snap in the world, for Mr. Quirin was getting rich, hand over foot.

I happened to visit Mr. Quirin soon after this newspaper article appeared. He admitted that a reporter had come to see him; that he reared without help 3000 queens. Where the reporter made the mistake, he said, was in figuring the average price secured for his queens at $2.00. If he produced 3000 queens in a season that meant in the neighborhood of $6000 for his queen business alone. The honey-production part of the business made this sum swell to nearly $8000 per annum according to the newspaper man. What are the facts? Mr. Quirin is a young man of German extraction, rather under medium height, but of wiry build. He is a tremendous worker; in fact, I never saw a man in any business, unless it was a molder working by the piece, who would work at the race-horse speed Mr. Quirin did. He would visit and work at a tremendous pace. It evidently did not pay him to *walk* from one part of the yard to the other—he simply *ran.* If a hive happened to be in his way, rather than take time to go around it he would jump over it—if it were not too high. Yes, I saw him run with his hands loaded down with supers filled with comb honey. All his movements around the hives were very rapid, except in removing the cover or in taking out the frames. When he started to shake the bees out of the supers of comb honey he would leave Mr. Heddon or any one else clear in the shade. The bees would rattle out of the supers like so many beans—just *had* to.

It is true he rears about 3000 queens without any help whatever, from the grafting of the cells clear up to the addressing and mailing. He has 450 strong colonies of bees



QUIRIN'S HOME APIARY AND QUEEN-REARING YARD, AT PARKERTOWN, OHIO.



QUIRIN'S TENEMENT HIVES RUN FOR COMB HONEY AT HIS CASTALIA YARD.

QUIRIN ABOUT TO OPEN HIS TENEMENT HIVES.

and six outyards, and queen-rearing nuclei—well, I forgot to inquire. These 450 colonies in their several yards he handles also alone.

What else does he do? He not only makes his own queen-cages, but a large portion of his own supplies as well as some for his neighbors roundabout, for he has a windmill and a power buzz-saw; and when he can not be on the run outdoors he can be on the jump inside, making needed things for the next season. One might suppose that he assumed this hot pace just while I was at his place, simply for effect. The fact is, others who had visited him said this was his normal pace. Nor is this all. He maps out his work each day, and plans to finish just

QUIRIN SHAKING BEES OUT OF SUPERS OF FINISHED SECTIONS.

so much. He apparently does not think it pays to waste time in sauntering over the yard, scratching his head, and thinking what to do next. It is all planned out ahead; and all he has to do is to make those poor arms and legs not only get busy but *keep busy*.

I have traveled many thousands of miles, and have seen bee-keepers east, north, and south work their bees. I have seen Coggshall in his kick-off-super act; I have seen some of his lightning operators at work; but I must say that Quirin, if the other fellows are lightning, is *greased* lightning. How long he will be able to keep up this rapid clip no one knows.

Now, having watched the man at work let us look into his methods. He is, first of all, a queen-breeder. The mere fact that he can raise 3000 queens and do his other work shows he must be extraordinarily expert. I asked him whether he had used the baby nuclei. He said he had; but the larger-sized boxes of bees gave him better results. It took less of his time. He would rather have a little more invested capital in the size of the baby nucleus, and less work, than a smaller box of bees and more work. His nucleus consists of two frames made by cutting an L. frame in the middle on a perpendicular line. Each half is then inserted in another frame, and two of them together are put into a box of the right dimensions to receive them. Two of these boxes were combined, end to end, into one long one. If you can imagine an ordinary Langstroth two-frame nucleus box which you cut into halves transversely by means of a partition you will get some idea of the nucleus that he uses. Why he did not combine these two boxes side by side so that the cluster of one compartment would warm the cluster of the other I did not think to inquire. When I questioned him about the very small baby nuclei not running satisfactorily he said it was merely because they would not hold laying queens, and brood would fail to mature. The larger boxes of bees would hold their own queens, and mature brood, and that has been just the experience of the Root Co. during the past summer. But we shall have more to say on this subject in a future issue.

A sort of birdseye view of Quirin's queen-rearing yard, as well as his honey-producing yard at home, is shown in the larger illustration. The photo was taken from the tower of the windmill, looking toward the west. The long boxes scattered here and there, each containing four half-sized Langstroth frames, are seen in the foreground.

The other views show snapshots of him while at work at his Castalia yard, where he has some 40 colonies, all in quadruple tenement Langstroth hives—four colonies in a hive, with only a thin cross-partition separating. He uses the ordinary super for comb honey, and these are placed in the upper story of the tenement hives. The warmth from the four clusters and the large protecting-case over and around the supers he regards as an important factor in honey production.

At each corner of the hives, as will be seen, there is a sort of bar or fender that projects out. The purpose of this is to divide the flight of the bees.

In one of the views he is shown in the act of shaking the bees out of the super; and I much regretted that there was not a moving-picture photographer there to catch Quirin in his greased-lightning act. He uses no bee-escapes, but shakes the bees out in front of the entrances of the hives from which the supers came. At the time of my visit (the fore part of August) the bees were working briskly storing honey in the supers. The hives are located under a row of apple-trees directly facing quite a pool of water which is fed from one of the monstrous springs that are found in that vicinity. At Castalia, it will be remembered, where this yard is located, is a sight that is well worth the travel of a hundred miles to see. It is called the "blue hole." A river of water comes out of the ground, apparently from nowhere; and as one looks down into the hole he seems to be looking into a bottomless pit. I am told one can see objects quite distinctly 60 or 70 feet below the surface of the water, so clear is the water. There appears to be an immense river under ground somewhere here, and in some places this water wells up to the surface. Quite a good-sized stream or trout-brook is fed by the aforesaid pool. Mr. Quirin, notwithstanding he has had a yard for several years located near this pool of water, had never seen it. He knew that people were coming from hundreds of miles to view this natural wonder. Why had he not gone to see it? Because he had been too busy. But as I was there that day, and

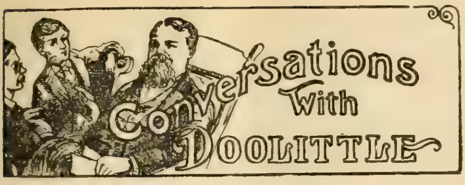
H. G. QUIRIN.

was going to see it, he would take time enough to take a look. We all got into the automobile, and (would you believe it?) the thing would not move. *It took me six hours and a half* to get the thing started. As Mr. Quirin could not wait that long — in fact, he had urgent business in town — he left me in a few minutes. The fact was, I had had my machine washed out at a garage, and a boy had turned a stream of water all over the bonnet, getting quite a quantity of water in the gasoline-tank.

—By courtesy of Kellogg & Co., New York.

J. H. Salisbury

See Health Notes, page 1032.



FIVE-BANDED BEES OR GOLDEN ITALIANS.

"Say, Doolittle, got time to talk a few minutes about bees?"

"Yes; always have time to talk about them. Ever know a man who did not have time to talk about the thing he was intensely interested in? It is those things which are uninteresting that a person has not time to talk about. Talk to a poultry enthusiast about chickens, a dairyman about cows, a motorist about autos, and any one of them will take time to listen to you; but talk to a rumseller about temperance, or a worldling about the religion of our Lord Jesus Christ, and they have no time for such things. I am an enthusiast on the bee question (also on some other things). What do you wish to talk about in the bee line this morning, Mr. Jones?"

"I wish to know if the golden Italian bees are a different race from the leather-colored Italians; or were they bred from the dark or imported Italians by choosing the light-colored queens to breed from?"

"According to my opinion, the Italian bees, no matter what their coloring, are not a fixed type or race of bees as are the German bees, or what are more commonly called 'black' bees."

"That is strange. What would you call them?"

"I consider them a variety, or what might be more properly called a thoroughbred, the same being brought about by the environments of their home during many generations and centuries, the environments largely being the snow-clad Alps in Italy. If I am correctly informed, the first importations of these bees to this country were quite dark—more so than the importations of the present day."

"Then you think selection had something to do with the matter?"

"Yes. Early breeders of these bees found that they were liable to 'sport,' as it is called; that is, some of the queens reared would be almost entirely black, while others would be striped with yellow, and still others a beautiful yellow nearly the whole length of the abdomen; and the longer these Italian bees stayed in this country the more yellow they became, even where no special attention was paid to the matter of color."

"But the goldens of to-day did not come about in that way, did they?"

"No. After a little some of the earlier queen-breeders saw a profit in the beautiful yellow shown by some of the Italian queens, a few generations removed from the imported stock, so they began breeding along this yellow line. Notable among these were the Rev. H. A. King, of Ohio; Mrs. E. S. Tupper, of Iowa, and Jos. M. Brooks, of Indiana, the latter seeming not only to breed for color, but for all of the other good qualities possessed by the Italian bee; and if there is any thing of praise to be said for the golden Italians of this day, this man Brooks should come in for his share, for there are few if any very yellow *Italian* bees in this country, at this time, but what sprang from stock which originally came from his apiary."

"Why did you put emphasis on that word *Italian?*"

"Because there are very many yellow bees in the United States which came from Cyprian stock originally; and this yellow breeding has been carried to such an extent that, in the very yellowest specimens, the queens do not show the least bit of black on their abdomens, and the drones' abdomen is nearly a solid mottled yellow, while very many of the workers are a solid yellow except the tip or point of the abdomen, which is of a brownish-black color."

"Do I understand that such bees as these came from queens whose original progeny were very dark, and many of the queens and drones nearly or quite black?"

"Yes; and as this color is of such a rich orange or gold, these bees are very properly called 'golden Italians;' but, aside from those having Cyprian blood in them, all originated from queens imported direct from Italy, being brought up to their present standard as to color by selection. In view of this, do you wonder that I object to such a strain of bees as this being called *pure?*"

"No. But one more question: Are golden Italians what are called by some people five-banded bees?"

"Yes. The worker bees from an imported queen direct from Italy show two colors on each of the three horny scales or segments of the abdomen, next to the thorax. That on each segment nearest the thorax is of a leather color, and that furthest from the thorax being of a very dark brown or nearly black color. This gave birth to the expression 'three-banded bees.' As the breeding toward the yellow progressed, some individual workers were found having a very narrow stripe of yellow on the fourth segment of the abdomen, and with this stripe came the contention that the Italian was *not* a pure race of bees, but a mongrel or thoroughbred; for, if bees showing three bands are pure, what are those showing yellow on four bands?"

"Yes, I see now. I had not thought of the matter in that light before. Go on."

"As the breeding for yellow continued, that on all the segments became wider and wider, the yellow encroaching on the black or dark more and more, all the while, until individual specimens began showing a very minute yellow stripe on the front edge of the fifth segment; which gave rise to the present term, 'five-banded' bees."

"That seems easy, I am sure. But some of the golden Italians are not thus marked, are they?"

"As this yellow on the fifth segment increased, the dark or black stripes on the first, second, and third segments vanished altogether; and, as progress continued, the black finally disappeared on the fourth segment also, which made such an individual worker bee appear something like a lump of gold as it sported in the sunshine in front of its hive; and some writers told of the lumps of gold, as such bees appeared to them, when seeing these young yellow bees on their first flight. This gave birth to the name 'golden' Italians."

"Then the five-banded bees and the golden Italians are one and the same thing?"

"Yes, only the goldens are a little more advanced in the race toward the orange-yellow line than are the five-banded. While this is so, the two terms are very largely used indiscriminately, both being applied to the very yellow bees of to-day. But the term 'golden Italians' is the better of the two."

"Thank you very much for this talk. It will help me very much in understanding better what I read about these bees."

"But what is the general verdict of the masses about the utility of the goldens as compared with the leather-colored or the three-banders?"

"Seems to be about equally divided. The goldens having Cyprian blood in them are very vindictive, and for this reason many are opposed to them; but the queen-breeder has more calls for the goldens than for any thing else, and that in spite of the desire on the part of some to make it appear that the three-banders are the best of all bees."

Heads of Grain
from different fields

OUTDOOR FEEDING; SOME SUGGESTIONS FOR PREVENTING ROBBING.

I have read with much interest your article, page 855, on outdoor feeding, and there are some questions about the matter for which I should thank you for answers; and I have one suggestion on which I should like your opinion. I have 13 colonies of hybrids, and one to which I recently introduced a queen from your yards. I wish to feed only enough to keep up brood-rearing, as my hives have nearly enough stores for winter, I believe. Suppose I should try the plan, feeding only a little daily, would not the bees be inclined to rob in the after part of the day, when the feed is exhausted? My suggestion for preventing this is as follows: Make fruit-jar feeders as described in a recent issue of GLEANINGS, leaving room on the grooved board for a second fruit-jar, which is to be placed in a slight depression in the board, and filled with very dilute honey or pure water. While the first jar contains honey, the atmospheric principle would work, letting down only the richer food; but as soon as that is exhausted the other jar would begin to pour out its contents, diluting the food until the feed already in the grooves would be diluted until the bees would consider it not worth the taking. What is your judgment on the plan? Suppose I should substitute Mason jars with perforated caps for the 60-lb. can: how many of these would it take to accommodate my 14 colonies? and how much feed should be used daily, for the purpose of keeping up brooding? I think I shall not need to feed before frost, as there is considerable heartsease here, and some white clover. They are getting a little pollen from plaintain. Little or no trouble from robbers as yet.

O. W. BRACKNEY.

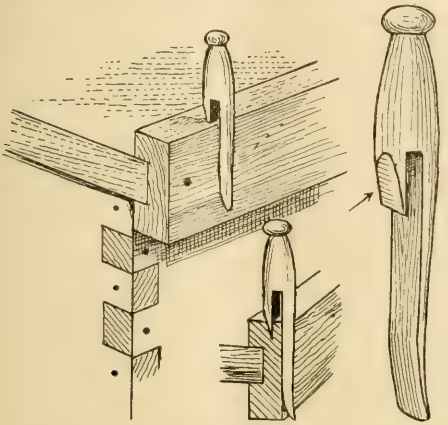
Wapakoneta, O., Aug. 25.

[As you have only so few colonies, the same need for feeding outdoors to prevent robbing would not exist as in the case of a larger apiary. If the entrance were contracted down to about 6×⅜, there would be no robbing unless you were doing a class of work requiring the opening of the hives pretty often. As you are having a good honey-flow just now, or were at the time you wrote, my suggestion is that you do all the manipulating of your colonies, so far as possible, at this time. In cool weather there will be no robbing, as the bees will not fly; so, taking it all in all, I do not think you need to do any outdoor feeding.

While your plan of putting two Mason fruit-jars at a time on a grooved board, one containing a very weak syrup and the other a very strong one, is quite ingenious, yet there will be no particular trouble when the bees have exhausted all the syrup unless you wish to work the hives just about this time. For an apiary so small, probably two or three Mason jars with perforated caps would be sufficient to keep the bees busy for a day or two longer. An inverted can with perforations is far better than the grooved-board plan. These cans should be elevated to quite a height, as mentioned in the editorial department, last issue, page 955, where this subject is discussed more at length.—ED.]

STANDING FRAMES; A CLOTHESPIN USED TO INDICATE THE CONDITION OF A COLONY.

In commenting on my standing frames, p. 482, you say, in the footnotes, that the trouble is that frames of this kind would have a tendency to topple over against their neighbors because there would be nothing to hold them together when one is pulled out. I wonder if you tried long enough to get used to them. If the hive is level, and you have wide bottom-bars, they will not topple over unless there should be some that are heavy with honey on one side near the top while the other side is light of honey. Such frames, when used, should be moved around so that they will stand slanting instead of standing parallel with the others; or if you have a little wedge to crowd this frame against the opposite end it will stay up while you are at work on the others. A clothespin will do if you have one handy.



By the way, clothespins are the handiest things to use as marks to warn you that that hive wants looking after. Why use brick when it is so much cheaper and easier to take a few clothespins with you? To use them you want to cut off one of the prongs so it will drive into the edge of the cover and stay up. If you paint them some bright colors, say red, white, blue, black, or yellow, you can use them for different purposes. For instance, a white one could be used for the queen. You want to clip your queens. Now, as fast as you find one, and have her clipped, use a pin to note it; and if you don't happen to find your queen, leave your pin off and you will then know that that hive wants looking at again. Different positions will also help in indicating the condition of a colony.

Clothespins cost by the box about a cent a dozen, so you see they are not very costly.

Pomfret Landing, Conn. J. L. HYDE.

[I have tried a clothespin in the manner here shown and was indeed surprised to see how firmly it imbeds itself in the cover.—ED.]

HONEY-DEW; HOME-MADE HIVES WITH 11×11-INCH FRAMES.

The trees here have been almost dripping with honey-dew several times, when a rain came and washed the leaves clean. When it stays on long enough the leaves have a glossy appearance as though syrup had been spilled on them. Some are white and frothy, in which froth you can plainly see grains of sugar. It is not confined to any tree. It comes on the leaves of four different kinds—oak, poplar, maple, and gum trees.

Is a hive containing ten frames 11×11 inches in size too large to give best results for 4×5 section honey? I average only 63 sections from those hives. It is one of my own construction, and holds ten frames in the brood-chamber, single-walled, the sections being in a case that holds 21 4×5 sections, said case being slipped in from the back of the hive.

Would it be better to use eight-frame hives, or make my frames smaller, say 9×11 inches? D. G. MORRIS.

Lindsays, Va., July 10.

[The honey-dew in question was doubtless deposited by aphides. These insects will be found on all trees, no matter what species.

A hive containing ten frames 11×11 would make a fair-sized brood-nest. Doolittle has used practically such a brood-nest for many years. His frames, however, are 11¼ square; but his verdict now is that a brood-nest of that shape is not enough better than the regular standard Langstroth brood-nest of ten frames to warrant the expense of using something outside of the ordinary standard. If you change at all you had better by far adopt the regular Langstroth frame, which we believe to be the best size for the average beginner.—ED.]

A NEIGHBOR CAPTURES A SWARM AND CLAIMS IT AS HIS OWN.

In May I purchased from your New York house one colony of bees and complete outfit. Early this month I sent for another colony, and with both I am delighted. But, to come down to business, 'tis this: Late in June my first colony cast a swarm. I had watched patiently, and was on hand when they left the hive. I lost track of them for a few minutes, supposing they went toward woods at the left, but found later they went to the right, and were crossing the highway when a neighbor, in passing, saw them, and, reaching up with his hat, captured a bunch (pint) including the queen, and took them home. A few minutes later he returned to the place where he saw the swarm, where I had then gone, and on telling him that it was my bees, and that I was looking for them, answered that, if they were mine, why didn't I catch them? He kept the bees.

Now, the question is, "What is the law in New Jersey governing swarms? Had I a right to insist on this neighbor returning mine? *I* felt, as a matter of principle, he ought. If you can help me out by giving me some light on this subject, I shall be very grateful.

Will you also give me the address of the Bee-keepers' Association? I wish to become a member. GEROTHMANN MORSE.

Athenia, N. J., July 24.

[The common law which is operative in all the States where there is no special legislation covering the case provides that a swarm of bees is the property of the one who discovers and captures it, providing the original owner has lost sight of it, even though he might have been in pursuit of the bees; so that, legally, unless there is some special law in your State (and I do not think there is), covering the point, the bees belong to your neighbor; but on moral grounds he ought to surrender them to you.

By joining the National Bee-keepers' Association you can secure a pamphlet giving the law relative to bees in all the States, as well as the common law where no special statutes are in existence. To become a member of the Association, write to the General Manager, N. E. France, Platteville, Wis., inclosing one dollar.—Ed.]

DRAWN COMBS VS. FULL SHEETS.

I should like to know if a good strong colony of bees will gather more honey if given full-drawn combs than if you give them some drawn combs and some full foundation to draw out. If so, what becomes of the wax which would be emitted through the wax-glands for comb-buildings?

Providence, R. I. William Seale.

[It is generally stated that bees will gather more honey with drawn combs than with foundation and drawn combs, although there are conditions when foundation may be given with practically no loss. It is a mooted question whether bees secrete wax when they do not need it; but I think the best authorities are of the opinion that, when there is no comb-building, there is no waste of wax scales. In fact, none are secreted in the first place. If this is true, then drawn combs would enable the bees to furnish actually more extracted honey than frames containing merely foundation. As a matter of fact, more extracted is actually produced in the generality of cases when drawn combs are used. This would be a proper subject for the experiment stations, and I here offer the suggestion that the general government have this matter tested.—Ed.]

WORMS ATTACKING THE UNHATCHED BEES.

Not long ago I had a hive of Italian bees. I failed to put the zinc queen-excluder on the hive; and the consequence was, the queen laid eggs and took my sections for her nursery (I use a 3-lb. section, and find my bees take well to them). Upon examination of this particular hive I decided to allow the brood time enough to begin hatching well, and then put on the excluder and put the queen below, which I did. Not long thereafter I noticed signs of web-worms, and on opening the section-case I found lots of hatched bees had gone below, but scores of brood in patches as large as the palm of my hand were alive, but still in their cells laboring to get out. I also noticed some that had gotten out had cut wings and small pieces of web on them. I found that small worms had gone in and had not only fastened these bees to their cells but were feasting on them. Scores of them were in the comb at the base of the cells, and looked like the small web-worms we usually see, but longer. I made a fire and burned them. They did not attack the honey at all, as the regular web-worms do, but imprisoned mature brood and ate them. I rid the hive entirely of them by cutting that part of the combs infested with them, and now that hive is in good condition, with no signs of them. Please tell me if this is an old enemy or a new one, as I never had any experience with them before.

L. L. Brockwell.

Edlow, Va., July 25, 1905.

[The case described is nothing more nor less than the old familiar moth-worms that have built galleries and webs into the worker brood. They very rarely make any depredations in hives having Italian blood, and, consequently, we advise introducing Italian blood into every colony. For full particulars regarding this bee enemy, see under heading of "Bee-moth," in our A B C of Bee Culture.—Ed.]

RED-CLOVER STOCK—WHAT IS IT?

In your issue for August 15 you speak of your red-clover breeder being dead. Will you kindly tell your readers, the majority of whom, I fancy, could not tell exactly what a red-clover queen is, just what kind of bee your and other red-clover bees are, anyhow? Are they pure Italians, golden, leather-colored, three-banded, or what?

R. Stuehck.

Arlington, Oregon, Aug. 23.

["Red-clover" is the name applied to a strain of bees direct from Italian imported stock which shows a disposition to work on red clover when other bees will do little or nothing on it. By this it is not claimed that the bees of all the queens of this blood will work on red clover every season and everywhere. In some localities red clover apparently yields no honey at all, and it is equally true that some of our red-clover bees may be no better than ordinary Italians. This strain is also quite remarkable for the amount of honey it will gather from any source. The bees of the original stock had tongues $\frac{21}{100}$ of an inch long; that is to say, they had a tongue-reach of that length. While this is not long enough to reach to the bottom of some of the longer red-clover tubes, it is sufficient to reach the nectar in some of them.—Ed.]

SHOULD A COLLEGE GRADUATE TAKE UP APICULTURE FOR A LIVELIHOOD?

Having just graduated from college I am now casting about to find a permanent business that will be to my liking, and result in large remuneration. I should appreciate greatly any information that you may be able to give concerning the profits that are now being made in large apiaries. In case I should desire to go into this business I should like to know that money could be made in raising bees on a much larger scale than the general average.

F. L. Bennett.

Rochester, N. Y., Sept. 4.

[I desire to be entirely frank with you, and say that the average college graduate could probably make more money pursuing some other calling than that of bee culture;

but bees will yield as much money as any outdoor pursuit, and a great deal more than the poultry business on the average. Ordinarily I would not recommend bee-keeping as an exclusive business; but it works in very nicely with some profession, for the reason that it affords recreation for mind and body after mental work has been performed.—ED.]

GIVING FRAMES OF HONEY TO COLONIES THAT ARE ALMOST READY TO WORK IN THE SUPERS.

Suppose I have a few weak colonies of bees that are not strong enough to work in the super; but they have three or four heavy frames of honey; how would it do to take a part of their frames of honey from them and put the honey in a colony of bees that is about ready to go into the super? As some bees will not work in the super until they have filled the brood-frames with brood and honey, these fat combs of honey would undoubtedly hurry them along, and one week sooner in a good honey-flow means money to the bee-keeper.

Velpen, Ind. W. T. DAVISON.

[The plan you speak of would be feasible in the case of both colonies under consideration; but the manipulation might not in all cases work out as expected. It might induce swarming to the colony to give so much sealed stores at once.—ED.]

THE PLAYSPELLS OF YOUNG BEES.

Will you please tell me what the trouble is when bees constantly come out of the hive, as if they were about to swarm, and then go back in? They also act as if they were fighting, and very angry. How do you proceed to change a swarm from one hive to another? How do you divide a swarm, and detect and get hold of the queen, etc.? What is the best way to protect them from severe winter weather? I have five colonies, and I find some of the hives are molested by the moth-miller. How shall I proceed to exterminate them, and to protect the bees from this pest in the future? H. S. SCHOFIELD.

West Olive, Mich., Sept. 4.

[It is very evident that your bees have been having playspells. Young bees will often deport themselves in the air in front of the entrance very much as if they were swarming. At other times it will look as if robbing were going on. The condition is perfectly normal; and if it is a playspell you will find in half an hour or so that the merry hum of the bees will have stopped. Your other question involves such extended answers that you are referred to our A B C of Bee Culture, or any other standard textbook on bees.—ED.]

PARTHENOGENESIS EXPLAINED.

If the drones from a pure Italian queen that has been mated to a black drone are pure Italian drones, or, in other words, if meeting the drones does not change the breed of drones, then if I start with pure Italian queens it does not matter how many black drones I have or how many mismated queens; or if the 16th generation of bees in the past was Italian, then the drones from these queens that mated with black drones every time would be pure Italians. Of course the workers would be blacks.

Velpen, Ind. W. T. DAVISON.

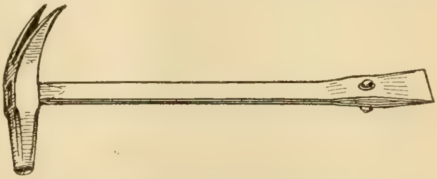
[This was referred to Dr. E. F. Phillips, of the Department of Agriculture, Washington, D. C., who replies:]

According to the theory of parthenogenesis, which is now very well established, drones are of the same race as the queen which lays the eggs; therefore, if an Italian queen is mated to a black drone all the drones from this queen are pure Italians. If from this queen a second queen is reared she will be half Italian and half black. According to this theory, then, the drones from the second queen will be half Italian and half black, and not, as you suppose, pure Italian. For the third generation the queen would be one-fourth Italian and three-fourths black, and her drones would be a blend of these two races in the same proportions. E. F. PHILLIPS,

Acting in Charge of Apiculture.

NEW HIVE-TOOL.

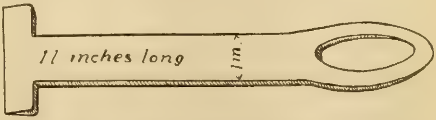
I send you a model of the hive-tool used here. It is the most complete thing I have seen. It is made from a big file. The end is pounded down and formed into the hammer and claw. The scraper end should be sharp. The little plug is put there to protect the thumb when prying supers apart. The tool will stop when pushed up to the plug. Bee-keepers here never think of taking any other tool to the bee-yard than this.



Longmont, Colo. C. F. WILSON.

GOOD DEMAND FOR BULK COMB HONEY; HIVE-TOOL ATTACHED BY A RUBBER BAND INSTEAD OF A STRING.

This year the local demand for bulk comb honey is better than usual; in fact, the supply is not sufficient for the demand for first-class comb and extracted honey.



I see Mr. Fowls has what he calls the best hive-tool ever invented, p. 590. Here is a description of a tool that I use, and consider the best out—at any rate, away ahead of a tack-puller. It is made of steel, ⅛×1 inch, 11 inches long; one end has a loop widened out to about 1½ inches, and then pointed so as to form an easy handle. The other end is 1¾ inches wide, and square cut at the end, which is thin, and reasonably sharp.

It is used to pry open hives and supers, clean off burr-combs from the top-bars of frames, covers, and section-holders; also to cut loose any brace-combs; as it is long and thin it can be run down between the outside frames and the side of hive to cut braces sometimes found there. It can be run under the covers and supers and given a twist to loosen frames that are hanging by burr-combs. Instead of a string a yard long I use a rubber band about half an inch wide, attached to the button at the side. It is always there, and does not wrap around your legs as you walk, as does the long string used by Mr. Fowls and others.

Sabinal, Tex. A. G. **Anderson.**

[A rubber cord that will stretch, in place of a string or a chain, I feel sure is decidedly better than something of fixed length, a good deal longer than need be sometimes, and not long enough at others.

The design of the hive-tool as shown above is excellent; but I am not sure but it would be better if the scraper end were bent at right angles so that the tool could be used something like a miniature hoe in scraping bottom-boards, and burr-combs off from brood-frames.—Ed.]

BURLAP OVER OR UNDER THE HONEY-BOARD?

June 15, page 643, about Mr. Burt's plan of using burlap over sections, does he place the burlap *over* or *under* the *honey-board?* I tried this scheme this year, placing the mat over the sections and honey-board on top. Result, bees propolized the mat fast to the edges of all sections, and entirely too much so to make it pleasant handling or nice-looking sections. If the same good result as to warming the super can be attained by placing the mat *over* the honey-board, and using the telescope cover, I shall adopt that plan. J. A. **Phillips.**

Washington, D. C.

[The burlap should be put on *top* of the super-cover or honey-board, and not under. No wonder you got your sections all daubed up with propolis.—Ed.]

REARING CELLS IN A HIVE WHERE THERE IS A LAYING QUEEN.

Please let me know if the following plan is proper: I have a colony which has an old queen, and another colony which is doing excellently in every way. I intend to place a queen-excluding division-board between the brood-frames to induce the bees to raise queen-cells. When they do I intend to cut out one of the cells, place it in a Titoff cage until hatched, leaving it in the same colony, then kill the old queen in the other colony, and introduce. A. B. **Manett.**

San Antonio, Texas, Aug. 16.

[It is not quite clear just how you intend to proceed in the matter of requeening; but if we understand you correctly you propose dividing off the brood-nest in halves by means of perforated zinc, and you assume that queen-cells will be started in that portion of the brood-nest from which the queen is excluded. This might happen under certain conditions; but as a general rule you would have to give this portion some grafted cells, said cells containing young larvæ and royal jelly. The bees would then draw out complete nine-tenths and possibly all of the cells. Such a division will take care of about one dozen cells usually.—Ed.]

HOLDING TRANSFERRED COMBS IN FRAMES WITH RUBBER BANDS.

In transferring comb from one size frame to another, or from a box to an improved hive, why not throw away the splints and strings used formerly, and use medium strong rubber bands? Stretch a band over each end; and if the pieces of comb are small one can be placed in the center of the frame. In the manipulation of the frames after the bees have fastened the comb to the wood, press the blade of a sharp knife on the bands where they cross the top-bar and they will fly out of the way. Page 819.

Nisbet, Penn. Grant **Stanley.**

[Your suggestion of rubber bands is most excellent, and I believe it is ahead of any thing else that has ever been suggested. They are now so cheap that the cost would be practically nothing. After the bees have got the combs fast in the frames it would not even be necessary to remove the frames. Just run a sharp knife over the top-bar through each rubber band and they will fly off the frame quicker than you can say it, down on to the bottom-board. The objection to a string is that the bees do not always gnaw it away. Practically it is necessary to remove the brood-frame, cut the string, and then unwind. The suggestion of the rubber band is worth considerable, and I have marked it to be incorporated in our A B C of Bee Culture providing it proves to be satisfactory in our bee-yards.—Ed.]

THE LEWIS WIRE SPACER FOR FRAMES, PAGE 549.

I am bothered with letters from all over the continent about that wire frame-spacer, and would be obliged if you would state in your journal that I am not making nor selling them. If you don't care to make them they are free for anybody else to make. The criticism of yours is remarkable; for if the spacers are properly made there is no truth in a word of it. I judge by my correspondence that, generally, bee-keepers think as I do. W. H. **Lewis.**

New Westminister, B. C.

[If our correspondent will try these frames on a large scale, and test them where propolis is bad, I think he will see objections to the spacer that do not now appear to him.—Ed.]

FIBER OR LEATHER WASHERS FOR FRAME-SPACERS.

In Stray Straws, p. 805, Dr. Miller says, "Use nails with heads ¼ inch thick." If one can not get them I should think he could cut soft spongy leather ¼ inch thick or slightly more in squares or disks about ⅜ inch in diameter, and drive nails through the center, sinking the nail-head into the leather slightly. This would be a protection to the knife in extracting. I think it might be cheaper to have fiber washers made if a factory were using a quantity. C. R. Dewey.

Dawson, Neb., Aug. 7.

[The fiber washer would certainly remove the objection usually urged against ordinary metallic spacers, namely, dulling the uncapping-knife. But this is an objection that I suspect exists more in theory than in actual practice.—Ed.]

CARBOLIC ACID AS A PREVENTIVE OF FOUL BROOD.

Last year foul brood prevailed here epidemically and severely. The county bee-inspector cleaned up, and this year the condition is much improved.

With new combs and ten-per-cent solution of carbolic acid which was introduced into the hive for evaporation, I kept foul brood out of the apiary. Is there any better preventive known to the bee-keeper? If so, I should like to know. Permanganate of potassium I suggested to our inspector, who declares it exterminates the disease germ, but I have never tried it.

Canon City, Colo. W. Babberger.

[The carbolic acid is all right to put into the syrup as a preventive of foul brood, but it must be used much stronger than is good for the bees to be at all destructive to the germs of that dread disease. Beta naphthol is not offensive, and, according to those who have tested it, it is more destructive to the microbes.—Ed.]

FEEDING MEDICATED SYRUP OUTDOORS.

I see you are using pretty much the same method I have used for ten years in outdoor feeding, also the same medicine (beta naphthol). It comes very handy to feed a little sometimes when clipping queens; but I think I can beat you all hollow for a cheap system and speed, especially if your neighbor has bees within 20 rods of your bees. I consider this the only way and proper time to get best results by getting the naphthol right into the empty brood-cells.

Molesworth, Ont. Chas. Mitchell.

[But you do not say *how* you could "beat us all out hollow" on a cheap system for outdoor feeding.—Ed.]

A GOOD HONEY-PLANT THAT BLOOMS ALL SUMMER.

I am sending you some flowers and branches of a little shrub or bush that grows in my yard, and which I have been told is called snowdrop. It began blooming, I think, a little after fruit-bloom, and it is in bloom yet. I am not sure, but I believe it blooms until frost. I have kept a close watch over it this spring and summer from daylight until dark, and I never look at the bush any time of the day without finding bees busy on the flowers. I don't know of any thing that will beat this little bush for keeping bees busy all day long. It will grow on rough rocky ground.

Velpen, Ind., June 2. W. T. Davison.

HOW TO MAKE A STEEL MAIL-BOX COOL ENOUGH FOR QUEENS.

I would advise Mr. Lew. W. Haines, page 727, to take some sharp instrument and perforate from the inside the approved letter-box which he has. By so doing he could secure sufficient ventilation for the safety of the queens. By perforating from the inside it would leave the interior of the box smooth, so as not to injure the hands in handling the mail. Substituting a wooden box would not be allowed by the Postoffice Department.

Chelsea, Mich. E. J. Whipple.

QUERY.

Will the readers of Gleanings please inform me what the honey-producing plants and trees are in Eastern North Carolina, say from the coast to 25 miles inland? What is the usual production per colony? How long does the flow last? Of what quality is it? Any information through Gleanings, or direct to me, will be thankfully received.

Hillsboro, Ohio. W. R. L. Dwyer.

[Those who are so situated are requested to answer.—Ed.]

A RECORD-BREAKING SWARM.

My first swarm came out the 28th day of April, and I had several others that swarmed the next week. On the 18th of June I had a swarm that weighed 17 pounds. I had to put them into the hive three times, then made up my mind they hadn't room enough, so I put on 48 boxes. The other day I was looking at them and they had them nearly ready to cap. I believe this swarm beats the prize swarm that was in Gleanings July 1. There is a very large crop of white clover this year, and bees are doing finely.

Sterling, Ill., July 7. J. A. Zigler.

GRADING HONEY.

In the issue for August 1 I notice Doolittle's conversation on grading honey. Does he take into consideration the quality of sections or of foundation used?

Lake Mills, Wis. Homer C. Stone.

[The matter is referred to Mr. D.—Ed.]

HEALTH NOTES

BY A. I. ROOT

DEATH OF DR J. H. SALISBURY, AND HIS LIFE WORK.

Dr. Salisbury died on the 23d of July, at the age of 82. I have had a good deal to say about Dr. S. and his contribution to medical science along the line of the meat cure; and I wish to say again that it is my impression few physicians living or who have lived have done more to get right down to the *origin* of a lot of diseases that afflict humanity than has Dr. Salisbury. When he first took up this matter in Cleveland he made a great number of experiments extending through many years, and at his own expense. He furnished workingmen board free of charge if they would take such food as he furnished, and no other. Then when his tests became more difficult he paid men wages to live as long as they could consistently on certain foods. When he was satisfied that certain kinds of indigestion could be cured by cutting off starch and sugar, he began extending his researches in regard to the effect of fruits and vegetables.

There is one very common malady that seems to prevail to such an extent, when fruit and vegetables get to be plentiful and cheap, that it has been called "summer complaint." Dr. Salisbury soon demonstrated that this trouble could be done away with entirely by a change of diet. Thousands of people have been restored to health and strength as the result of his discoveries. By the aid of the microscope in examining the blood and urine, he originated a course of treatment; but while his bright anticipations were not *all* realized, many wonderful recoveries followed along this line. The principal trouble seems to be that there are so many who get into the habit of eating daily great quantities of sweets and fruits, or perhaps we might say sweetened fruits, that they find it pretty hard to follow the Salisbury treatment. Several, to my knowledge, while admitting that he was right, or nearly so, said they would *rather* be sick than not have any thing "good to eat." One young man said he would rather die than to eat beefsteak all the rest of his life; and die he did a most painful death with diabetes. Others (and, I feel ashamed to say, myself among them) thought it would be a fine thing if they could find some kind of drug or "doctor's stuff" that would take the place of the narrow and disagreeable lean-meat diet, and then eat *what* you please and as *much* as you please. I have never found any such medicine, although several times I have got hold of something that would give temporary relief.

When you are on the lean-meat diet two things are accomplished: First, the lean meat *can not* ferment in the stomach and bowels, and produce yeast and a great quantity of foul gases, and finally a putrefying mass that nature expels by a course of diarrhea, and finally, perhaps, dysentery. Secondly, when one is on the meat diet he never eats *too much*. A great many times eating sparingly and chewing the food well may take the place of the lean-meat diet. For instance, I am very fond of baked apples; but most people take them after eating a pretty good meal of something else. Now, baked apples with me, after a fair meal, will usually produce headache, distress during the night, and sometimes something worse,* while I can make a *whole meal* of baked apples, and nothing else, and get along all right; and the same is true of ever so many other things. Even beans, that distress me more than almost any thing, will be managed all right by the digestive organs if I eat nothing but dry bread with them and do not take too big a "dose." And hot maple sugar, which will make hundreds of people sick, if taken between meals (*especially* if taken in excess), will be managed all right by my digestive apparatus if I take it at my regular meal times, in a moderate quantity, with dry bread and nothing else. Not only machinery, but flesh and blood will do good work for a long time if you do not overload it; and it has been demonstrated pretty well by physicians and thousands of other people that you can do *more* work, and do it *easier*, by getting up from the table when you are still a little hungry, than to eat all you want and do it *three times a day*. Make the meals smaller or do not eat so often, and many people could find relief by doing both.

Now, do not jump to the conclusion that eating less is going to get you out of trouble if your digestive organs are once badly "out of kilter." Dozens of times, and I am almost tempted to say hundreds of times, I have said to Mrs. Root, "Sue, there is no use beating about the bush any longer. I am not going to get out of this fix until I come down to clean ground meat." And the lean meat alone has so far straightened out diarrhea or its culminating neighbor, dysentery. Usually after about 48 hours the meat diet gets me straight. When malarial fever sets in with the others it may take a week.†

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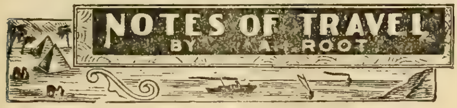
* Some of our readers may inquire how I reconcile the above statement with what I said a few months ago about eating three or four good-sized apples just before going to bed. If you will remember, that was in January, and the apples I ate then were very mellow and ripe; and I am glad to say that at two different times of late I have been able to eat very ripe apples in the way mentioned, without any trouble at all. But during warm weather, say about the season of "summer complaint" mentioned above (July and August), I should have an attack of my old trouble, malarial fever; and when this comes on I have learned by sad experience that I have got to cut off square all fruit and sometimes all vegetables? When I am up at Grand Traverse Bay, as I have told you so many times, where malaria is unknown, I eat fruit and every thing else that other people do; and that is just the reason why I am away from home so much during the summer and fall.

† When I first became acquainted with Dr, Salisbury he made a remark something like this: "The meat-shop is a cheaper place than a doctor's shop." He meant by this that many people can be saved expensive doctor bills by patronizing a meat-market. It is true that a meat diet is, many times, more expensive than a vegetable diet, but not much more expensive than when you

But the greater part of the time, about three meals sets me right again; and very frequently dropping sugar in every shape, together with sweet or sweetened fruits, of *itself* gets me all right again. Now, a great many of our readers, as I know from the letters you send me, have proved this matter just as I have done; and yet it is one of the saddest and most saddening things that we meet (at least saddening to me) to see our health journals, or the greater part of them, hammering away on vegetarian diet for everybody indiscriminately. Lots of people, and I am glad to say my wife is among the crowd, could get along very well, and perhaps enjoy excellent health, on a vegetarian diet; but even she, when hovering between life and death, after an attack of pleuro-pneumonia, acknowledged that ground or scraped lean meat, without any question, saved her life.

Another sad thing is that there are quite a good many physicians who will have it that meat is *indigestible*, and not fit for a weak stomach. Such physicians had better acquaint themselves with Dr. Salisbury's experiments and with his life work. May God be praised that Dr. Salisbury was permitted to live and to call the attention of the whole wide world to the fact that thousands of valuable lives can be saved by cutting off a vegetable diet entirely for a sufficient time to let the digestive apparatus rest and recuperate.

We can furnish on application a little pamphlet entitled "Who is Dr. Salisbury? and what is his Treatment?"



CABIN IN THE WOODS; EARLY PEACHES.

When we planted our peach-trees around the "cabin," four years ago, I selected only early varieties because I supposed we should make this our home only in summer or early fall. I had two points in view — to make a test of the early and extra earlies, and to have a succession, one kind ripening after another. Well, when we reached here July 27 (see p. 875, Aug. 15) the Hale's Early were just coming up nicely; and, by the way, if this peach were not an edible fruit at all, I think it would be worth planting just for an ornamental tree. The trees around the cabin door had been pruned, mulched, and trained by my own hand; and when the limbs were bending gracefully, lower and lower every day with their loads of ruddy fruit, I never seemed to tire of admiring them. Austin Hale, the introducer of Hale's Early, was a near neighbor and intimate friend of my boyhood; and as the fruit began to ripen they seemed not only the finest peaches in the world, but I was tempted to call them the finest of all fruits. Mrs. Root declared it was largely due to the fact that I had fussed with the trees, and *loved* them (yes, *loved* is the word) every summer that made me so enthusiastic over the fruit. Of course, they are tenacious "clings" (at least they are here); and, besides, they are so full of "juice" one can hardly eat one without getting it all over his fingers and mouth, and possibly clothing also.

The next to ripen was Waterloo. This is larger, beautifully marked with both red and yellow, and a firm peach, but with white flesh.

Triumph ripens here about two weeks after Hale's Early; is much like it in color outside, but yellow flesh, and not nearly as watery as Hale's. The flesh is more meaty, and does not cling so tenaciously to the stone.

Prolific is about a week later still, large size, yellow flesh, and almost a freestone; and I should call it almost equal to any of the best late peaches.

All the above early peaches have the disagreeable habit, more or less, of beginning to rot just as they begin to ripen, or a little before. Many fine peaches will be hard on one side, just right to eat on the other, and a rotten spot in the center of the soft side. When this peculiar rot starts it takes the whole peach very quickly. A neighbor picked a lot just right to can, put them in the cellar to wait until next day; but when next day came the most of them were too far gone to use. Hale's Early presents a beautiful appearance canned whole; and where one is pressed for time, even the peeling can be left on.

BEES AND PEACHES.

When this rot starts so suddenly, when the peach is just softening on one side, bees and other insects are apt to be accused of destroying the peaches; and no wonder the bees consider it quite a "find," for a Hale's Early peach is almost as sweet as sugar, and a more "entrancing" sweetness than any sugar ever invented or discovered. The bees have not troubled ours; but a large black ant would get inside just where (and when) the rot started, and in a very short time there would be a big cavity filled with ants. When I attempted to drive them out and off they bit my hands viciously. Had I not known about bees and early peaches I might have claimed the *ants* were destroying all my nice fruit. I think most fruitmen are now posted in regard to this matter, as we hear little of late in regard to bees destroying fruit.

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take into considertiaon the cost of doctors and drugs. Yesterday, Sept. 5, my breakfast, dinner, and supper were all made from 1¼ lbs. of ground lean beef, which cost just 20 cents. I did not eat any thing else all day—not even a crumb of bread. All the dishes needed to serve this excellent repast—and it was excellent, too, becase it was good meat—was just a fork and one plate. As I drank only hot water there was no expense (in "washing dishes") for a cup and saucer. The result is that to-day I feel as sweet and clean as a glass bottle that has been scalded outside and in with hot water. I could keep this diet up for a week or more without any *particular* inconvenience, for I have done so repeatedly when my digestion was impaired by malaria or otherwise.

EVERBEARING MULBERRIES.

A neighbor has a couple of mulberry-trees that have been furnishing ripe fruit since July, and will, no doubt, give nice fruit until October. The berries are much larger now than they were earlier. The birds do not take them now; but it is probably because there is such an abundance of wild blackberries all over the hills that there are not "birds enough to go round." In Ohio we have a large tree of Downing's Everbearing; but the robins are so constantly on hand we never get a real *ripe* berry—at least we have not this season. There are all the time large fine green berries; but just as soon as they fairly color, the birds take them. The only way we could get any real ripe June berries this season, as well as last, was to cover the bushes with mosquito-netting; but that would be a pretty big job for a big tree, mulberry or cherry.

HAY FEVER AND ASTHMA — CHANGE OF LOCALITY, ETC.

When we returned here, Sept. 8, the manager of our Ohio apiaries, Mr. Mel. Pritchard, came with us. He has for years had the hay fever every fall; and this time when he left home he had not been able to sleep in a bed for ten days. All the sleep he could get was by sitting in a chair, with his head on a table in front of him. When he got here, as it was quite warm we fixed him up in the hammock under the maple-trees. He slept all night nicely, and has slept all right *in a bed* every night since, a little over a week. Now, isn't this a big testimonial for this region as a health resort? It looks so; but we should look closely on all sides of cases like this. I took him over the hills and through the woods, and this would likely be a large factor in the matter. A year ago he went to St. Louis and got relief. The fields of Northern Ohio are at this season covered with ragweed in full bloom; and many people, and some physicians among them, think this causes hay fever. There is none of it in this locality.

Another puzzling thing comes in here. There are bad cases of asthma in this locality, and several have got relief by going to Oregon, California, and other places. Are we to understand from this that a *change* of locality is often beneficial? In August I had so much trouble with what I called malaria I tried the lean meat and every thing I knew of, and finally decided there was no way but to get back here. When I took "Mel" over the hills until I tired him out (he is 40 and I 65) he got over his asthma. I was clear of the malaria, as if by magic; and yet right in the face of this two of our neighbors are suffering from malarial fever, or at least they say they are. If it is the beautiful spring water that flows from the base of these sandy hills that improves my digestion, so I eat every thing with impunity, why doesn't it work the same way with old residents? Is it possible that a change of *drinking-water* is often beneficial, just as a change of air sometimes works wonders? May the kind Father above guide and give us wisdom in all these perplexing matters pertaining to health.

MUSHROOMS FOR FOOD, ETC.

Mel has always been a great lover of the woods, fields, etc., and he is quite a hand to hunt and fish. Mushrooms are quite a hobby of his, and he has been having some correspondence with the Department at Washington in regard to the edible fungi of our country. The first day we were out he spied what I have always called "puffball" mushrooms, and by his direction we peeled and sliced them, and fried them in butter about as you would eggs. While frying they gave out a most appetizing odor that made me sure I should like them; and, sure enough, I found them more delicious than any kind of meat, oysters, fish, or any thing of the kind. These mushrooms are especially recommended by the Department at Washington, because there is no poisonous variety nor any thing like them. You will find them in old rich pastures, about the size of a goose egg or larger, and just about as white and smooth. When broken open they look like very white flour. When they get so old as to look dark inside they are strong and unpleasant, but not poisonous. They are often so plentiful that the boys pelt each other with them, and call it snowballing in the summer time. In cooking them use plenty of salt as well as butter, and a little pepper.

OUR HOMES,

BY A. I. ROOT.

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5:20.

On p. 947 Dr. Miller calls our attention to a matter I had never considered particularly before. By all means have the children converted and brought into the church, even at the early age of ten years, if it can be done; but when the question arises as to how we shall use our strength, energies, and *influence*, whether with the children mostly, or with older people it were well to consider a little. There are those who openly advocate the practice of letting old sinners go and bestowing our labors on the youth who are not yet hardened, and where it will do some good. Here in Bingham, as I have told you, the church was almost "gone to pieces." All had backslidden, at least all the male members had, and only a small handful of women called themselves church-members. These women and children kept up the Sunday-school, and made the congregation at preaching service every other Sunday. The first to come forward at our recent revival services were the younger ones. Now, was I making any mistake when I prayed and labored to get some full-grown men among the converts as well as the children? One man whom I had plead with until he was almost vexed, finally, to my great surprise, came forward one evening at the very first invitation, and before anybody else. The next night he came just as promptly again, and in his testimony said something like this:

"Dear friends, I have got through one day, the first in years, without a single bad word. I feel better and happier. I do not think I shall ever want to turn back. I am sure I am getting on 'higher ground.' Pray for me."

This man is on hand at every meeting, always takes part, and there are *toward a dozen* big broad-shouldered men just like him. They are not only "broad-shouldered," but they are men of influence in the community. These men have been baptized, and are members of the church. Now, dear brother Dr. Miller, was it not our duty to work and pray a little harder for these men? At present writing thirty have been baptized, and quite a few more have united with the church who have been baptized at some time in the past.

One grand thing about this revival is that the work seems to go right on just about the same (as it does in Wales), when the good pastor is not with us. He is now holding meetings in another parish, but we have a weekly prayer-meeting every Wednesday evening. At these meetings all are on hand; and last evening, besides the prayers, twenty-one stood up and bore testimony, telling how they were getting on in the new life. I hope I am mistaken; but I have always feared that a child of ten hardly realizes what it undertakes, and might change its mind as it grows older; whereas a man of thirty or forty is not very likely to backslide. With big strong men to take the lead, the young ones are very much less likely to go back; in fact, they will hardly ever go back if they are properly looked after. The dear Savior said to Peter, "Feed my lambs," and there is need of a whole lot of Peters. Our pastor is preaching in four different places, and he says he expects a work like this here in each of the four places. He is going to preach to them every night for three or four weeks. Somebody noticed his harness was getting old, and the money was raised for a new one in a twinkling; and as I write a project is on foot to get him an extra horse. This whole community is now a unit in showing to each other the spirit of Christ Jesus.

LOOK OUT FOR SWINDLERS WHEN YOU PATRONIZE BARBER-SHOPS AWAY FROM HOME.

While waiting for the train in Union Station, Detroit, I went into the station barber-shop to have my hair cut. The very obliging barber asked a good many questions about how I wanted my hair and whiskers trimmed, etc. I replied in a general way to fix me up in good shape, using his own judgment, etc. When he got nearly through he made the remark that some of my eyebrows were rather long, and asked if they ever troubled me by getting in my eyes. I told him they did, especially in a strong wind or when riding in the automobile. He said he had a way of singeing them that would prevent all that, and rather improve my appearance at the same time. Then he mentioned some spots on my face that he could remove in a very few minutes. I thought once of asking him what these things were going to cost; but finally, supposing it would be only a few cents any way, I let the matter drop. As I had a shampoo as well as a hair-cut I thought the price would be 50 or 60 cents. Imagine my surprise when he said the price was *$1.60.* I was going to protest; then I remembered his various questions about this, that, and the other thing, and that he really had my sanction, although I did not think of it at the time. So I paid the bill. When I got home I asked our home barber what he knew about this new species of "graft." He said it is getting to be quite common. Three of our townsmen have been swindled in a similar way. One was charged $1.80 and another one $1.85 when they supposed the bill would be only 30 or 40 cents. In Columbus they tried the game on one of our Medina *lawyers*, but he refused to pay the exorbitant charge, and demanded to see the proprietor of the establishment. The barber reluctantly admitted that it belonged to the hotel where he was stopping; but before the barber would consent to having the matter referred to the hotel management he accepted the usual price for the service he had given.

I have narrated this little transaction because I think it may save the readers of GLEANINGS from getting bitten in a similar way. The game is usually worked on somebody who is not likely to be a customer in the future. He found out that I was traveling, and I was foolish enough to let him know that I used an automobile; and he inferred from this that I would not *mind* being swindled out of a dollar if he went about it carefully.

Now, let us unite in sitting down promptly on all such modern methods of swindling. Find out beforehand what every thing is going to cost, especially in a strange place; and then let us imitate our beloved President by insisting on a "square deal" every day in the week.

I presented the matter to one of the officers of the Pere Marquette R. R., and they informed me that this barber has just been dismissed from the station for the very offense I have mentioned.

I WILL BUY

a few tons of honey, and pay cash at your depot. Correspondence solicited giving full particulars as to quality, style of section, when it will be ready to ship, price wanted, etc. If satisfactory, I will call on you.

A. W. SMITH, BIRMINGHAM, MICH.

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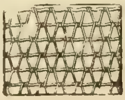
All No. 9 Steel Wire. Well Galvanized. Weighs ⅓ more than most fences. **16 to 35c per rod delivered.** We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. **The Brown Fence and Wire Co., Cleveland, Ohio.**

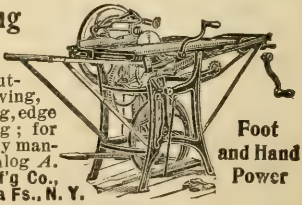


FENCE STRONGEST MADE. Bull-strong chicken-tight. Sold to the Farmer at Wholesale Prices. Fully warranted. Catalog free

COILED SPRING FENCE CO.,
Box 101 Winchester, Indiana.

450,000 TREES

[illegible] varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. **Lewis Roesch, Fredonia, N.Y.**



Wood-working Machinery.

For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A*.
The Seneca Falls M'f'g Co.,
44 Water St., Seneca Fs., N. Y.

Foot and Hand Power

Squab Book Free

Squabs are raised in one month, bring BIG PRICES. Eager market. Money-makers for poultrymen, farmers, women. Here's something WORTH LOOKING INTO. Send for our FREE BOOK, "How to Make Money with Squabs," and learn this rich industry. Address
PLYMOUTH ROCK SQUAB CO.,
320 Howard St., : MELROSE, MASS.

Mr. A. I. Root's Writings

of Grand Traverse territory and Leelanau Co. are descriptive of Michigan's most beautiful sections reached most conveniently via the

PERE MARQUETTE R. R.

For pamphlets of Michigan farm lands and the fruit belt, address J. E. Merritt, Manistee, Michigan.

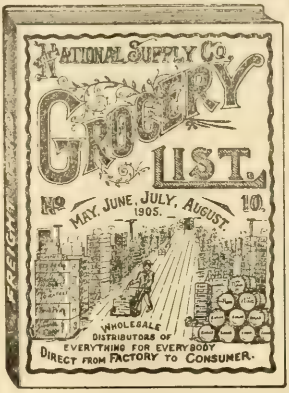
GROCERIES AT WHOLESALE PRICES

FREE This catalogue will save you money on your grocery supplies.

FREIGHT PAID

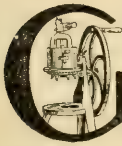
What do your groceries cost you a year? Will you buy them of us if we can prove that we will save you from 10 per cent to 20 per cent and *pay the freight?* That certainly is an amount worth saving; it is worth the trouble of asking for the proof. Get our large Grocery List and compare our prices with what you have been paying. Then put us to a greater test—send us a trial order and compare the goods and the prices. If we do not save you big money, send the goods back at our expense. The grocery bill is the biggest part of the family expenses. We will cut it almost in the middle and guarantee everything we sell. We can do this because we buy in immense quantities—carloads and trainloads—and we give you the benefit of our ability to buy cheap; in fact we can sell to you at just about the figure your local dealer would have to pay. We save you *his profit* and the *freight* besides.

To save still another 10 per cent, become a member of the **Co-operative Society of the National Supply Co.** We'll tell you how to get this extra 10 per cent discount, if you will write for full information. An easy way to make money.



If you want to save money get our catalogue and learn just how cheap you can buy groceries from us. Catalogue is ready and lists everything in the grocery line. We send it *free.*

Co-operative Society of the National Supply Co., Lansing, Mich. and Chicago, Ill.



GREEN BONE MAKES EGGS

Lots of them, because it is rich in protein and all other egg elements. You get twice the eggs, more fertile, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER cuts all kinds of bone, with adhering meat and gristle, easy, fast and fine. Automatic feed, open hopper, never clogs. Cat'lg free.

10 Days Free Trial. No money in advance. **F. W. MANN CO., Box 37, Milford, Mass.**

Nothing Anywhere Like THE STOCK YARDS

The eighth wonder of the world is the Union Stock Yards, Chicago. Manager Skinner of the International Exposition has prepared a comprehensive article for the October issue of that authoritative paper—

BLOODED STOCK

This contribution from so competent a source will make this number worth a whole year's subscription price—25c. Subscribe. Write for handsome free 32-pp. booklet.

Blooded Stock, Box 218, Oxford Pa.

Save Half Your Fuel

BY USING THE

ROCHESTER RADIATOR

Fits any Stove or Furnace.
Write for booklet on heating homes.

Rochester Radiator Co.
50 Furnace St., Rochester, N.Y.

Price from $2.00 to $12.00.
For hard or soft coal, wood or gas.

Your Face Tells

If it's soft, smooth and free from irritation, it's a sign you use the healing

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide how to Dress Correctly."

The J. B. Williams Co Glastonbury, Conn.

SPRAY PUMPS

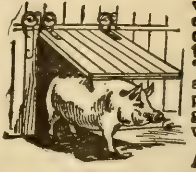
The Pump That Pumps SPRAY PUMPS

MYERS Glass Valve

Double-acting, Lift, Tank and Spray **PUMPS** Store Ladders, Etc. **HAY TOOLS** of all kinds. Write for Circulars and Prices.

Myers Stayon Flexible Door Hangers with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.

F. E. MYERS & BRO.
Ashland, Ohio



Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—Old-fashioned straw hives or skeps.
CHAS. E. FRICK, 1019 Lehigh Av., Phila., Pa.

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—To exchange modern firearms for incubators and a Barnes cross-cut saw.
W. S. AMMON, 216-218 Court St., Reading, Pa.

WANTED.—To exchange a McCombs broom-stitcher, nearly new, for bee-supplies, cash, or any thing I can use. A. W. SWAN, CENTRALIA, Kansas.

WANTED.—To buy colonies of bees. State price and condition. F. H. FARMER,
182 Friend St., Boston, Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Beeswax. We are paying 26 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St, Chicago, 44 Vesey St., New York city, and 100 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, Ohio.

Situations Wanted.

WANTED.—Situation in Cuba; will either take full charge of an apiary or work as helper; over 15 years' practical experience in bee culture, and understand the business in all its branches. Particulars by letter. F. G. DENZINGER, Olean, N. Y.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

FOR SALE.—A dozen or more mismated Italian queens at 20c each. W. F. STUART, Ottawa, Kan.

FOR SALE.—We have received three cars California honey recently all in new 60 lb. cans and casee. The empties will be sold at the low price of 35 cts. per case.
J. A. BUCHANAN & SONS, Hollidays Cove, W, Va.

FOR SALE.—Full colonies, with tested Italian queens, $3.50 to $5.00. Write at once.
S. F. TREGO, Swedona, Ill.

FOR SALE.—A home-made foot-power saw for $5 00; does excellent work, and weighs 350 lbs.
DR. J. Q. MULFORD, Lebanon, Ohio.

FOR SALE.—Full colonies of leather-colored Italian bees at $4.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Second-hand 60-lb. cans. Guaranteed to please at 35 or 40 cts. per case of two cans each.
A. G. WOODMAN, Grand Rapids, Mich.

FOR SALE.—Three untested Italian queens for $1. See ad. Oct. 1 GLEANINGS. S. F. TREGO, Swedona, Ill.

FOR SALE.—Jelly-tumblers for extracted honey. We sell barrel lots only. Can save you money; 33 different styles. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—For cash, five-gallon square tin cans, used for honey, at about half price of new tin cans. For prices, etc., address OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

FOR SALE.—100 to 150 stands Italian bees for sale in 8-frame Dovetailed hives, nearly new. Will sell in any quantity. Write for prices.
W. F. STUART, Ottawa, Kan.

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.
N. O. PENNY, Vero, Indian River, Florida.

FOR SALE.—My apiaries of 300 colonies near Macon, Ga., the third healthiest city in the U. S., a ready market for output at a fancy price. Prefer selling a half-interest to a good practical bee-man to take charge. If you mean business, address for particulars
JUDSON HEARD, Atlanta, Ga.

FOR SALE.—We offer, for the first time, queens which produce beautiful bees. You never will be sorry if you try one of our beauties. Untested, 75c; tested, $1.00. Choice strain of leather-colored queens at same price.
F. H. FARMER, 182 Friend St., Boston, Mass.

FOR SALE.—Too many "irons in my fire" will sell my apiary of about 140 colonies at the end of the honey season. They are located in the heart of the alfalfa-seed belt; always had large crops; bees winter on summer stands; ten-frame and Jumbo hives.
F. R. FOUCH, Parma, Idaho.

FOR SALE.—In the prairie belt of Mississippi, 225 acres of land, six miles from Macon, large house, four cabins, 20 acres timber, plenty of water; 652 acres, 12 miles from Macon, good improvements, plenty of water, 100 acres young timber, 350 acres in Bermuda and sweet clover, balance tillable. Part of this land will make 50 bushels of corn per acre and from one-half to one bale of cotton; daily mail and telephone; also 500 stands of Italian bees. No honey failure in 12 years.
GEO. A. HUMMER, Brazelia, Miss.

Poorly Galvanized Fences.

We hear so many complaints the last few years about galvanized wire not being so "lasty" as the wire furnished some years ago that this question seemingly has become serious, and of interest to every farmer.

As considerable money is now spent by the average farmer for fences, it would seem good judgment to study thoroughly the fence question before buying, with a view to securing the very best article made, and know that it is heavily galvanized, and weather-proof.

The Brown Fence and Wire Company, of Cleveland, Ohio, whose advertisement appeared in GLEANINGS, page 1036, claim to make a heavy-weight farm fence, using all No. 9 coiled-spring steel-strand wires with No. 9 stay wires, and all wires containing an extra-heavy coating of galvanizing. Their catalog is interesting to fence-buyers, and complete with fence facts.

EXPERT BEE-KEEPERS

THERE is a large demand for expert bee-keepers all over the country. We have not been able to supply men to fill the requests that have come to us. Our Correspondence School can fit men to fill such positions, and every one of our graduates has had an abundance of opportunities to select from. But our school is not for this purpose alone. It will teach any man or woman anywhere to become a good bee-keeper. It's the quickest and easiest way to learn bee-keeping. Write for our prospectus. A postal card will do. This prospectus will tell you just who can take up bee-keeping to advantage, and gives complete synopsis of course.

Outline of Course

I. Definitions of Terms.
II. Inmates of the Hive.
III. Comb.
IV. Handling Bees.
V. Transferring.
VI. Building up Colonies.
VII. The Honey-flow.
VII. Swarming.
IX. Rendering Normal.
X. Preparing for Winter.
XI. Wintering.
XII. Spring Management.
XIII. Bee-diseases, Symptoms.
XIV. Enemies of Bees.
XV. Establishing an Apiary.
XVI. Queen-rearing.
XVII. General Examination.

TERMS OF COURSE

FULL-CASH PAYMENT

Complete course as outlined, lessons, personal answers to all questions, including the A B C of Bee Culture (500-page book), and Gleanings in Bee Culture (semi-monthly) for one year, $12.00.

With either the A B C or Gleanings omitted in case you have one, $11.00.

With both omitted in case you have both, $10.00.

If a full colony of Italian bees with tested queen is wanted, in either Dovetailed or Danzenbaker hive, we will, for $10.00 extra, deliver one colony at your express station, at any point in U. S. east of the Mississippi River, or make equal allowance to other points.

INSTALLMENT PLAN

Complete course, no bees, $3.00 with order, $2.00 per month for 6 months.

Same with one colony bees, $7.00 with order, $3.00 per month for 6 months.

In case you have the A B C of Bee Culture or Gleanings $1.00 may be deducted for either, or $2.00 for both.

☞ CUT HERE ☜

The Root Correspondence School of Bee Culture

Medina, Ohio

....190....

Enclosed find .... inpayment (installment plan) (cash plan) of one complete course of instruction in the Root Correspondence School of Bee Culture.

Name...

P. O..................................... *State..................................*

County or Street .... *Exp. Office...............................*

PLEASE ANSWER THE FOLLOWING: Have you a colony of bees?...........

Have you an A B C of Bee Culture of 1903 or 1905, which?...........

Have you already subscribed for Gleanings this year?...............

A FEW

Unsolicited Testimonials Showing Kind of Stock Sent Out by Quirin-the-Queen-Breeder

Our folks say that your queens are extra fine.
The A. I. Root Co , Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens.
B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey.
J. L. Gandy, Humboldt Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country.
E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.
F. P. Merritt, 13 Breckenridge St, Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirley, Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half-dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.
S. A. Peck, Box 124, Northumberland, Pa.

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	.....
Straight five-band breeders	5 00	.....	.....

Requeen your bees now; do not put it off till too late. Quirin's bees begin work in sections the last of April. Remember it's the early bees that make the nice white box honey. Do not delay ordering, as the queen-rearing season will soon shut down. We guarantee safe delivery. Any queen not found satisfactory may be returned inside of sixty days and another will be sent in her place. Italian queens only.

Address All Orders to

Quirin = the = Queen = Breeder

BELLEVUE, OHIO

New Goods----Big Stock,

NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,

AT

SAVANNAH, GA.

We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory.

BEES AND QUEENS

We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

HOWKINS & RUSH,
124 WEST LIBERTY ST.,
SAVANNAH, - - GEORGIA.

OUR SPECIALTIES

Cary Simplicity Hives and Supers;
Root and Danzenbaker Hives and Supers;
Root's Sections, Weed Process Foundation,
Bingham Smokers;
Bees and Queens in their Season;
Thirty-two-page Catalog Free.

W. W. Cary & Son, Lyonsville, Mass.

Our NEW POLICY

Now is the time to make plans for 1906. Our plan is to establish a branch house at every country town. ... Write for particulars.

Up-to-date

Bee-hives, sections, fences, smokers, foundation comb, bee-veils, gloves, and all kinds of bee-hives and supplies manufactured and for sale. Car lots a specialty.

W. H. Putnam, River Falls, Wis.

Send for Our Catalog of Bee Supplies

We handle the best makes of Dovetailed hives, one-piece sections, comb foundation, and all other articles needed in the apiary, at lowest living prices. Bees and queens for sale in season. **A. W. Swan & Co , Centralia, Kan.**

$300,000,000 in Poultry

Do you know that the government census of 1900 gives the value of the poultry in that year at very nearly $300,000,000?

POULTRY SUCCESS, the Twentieth-Century Poultry Magazine, is absolutely indispensable to every one interested in chickens, whether they be beginners, experienced poultry-raisers, or keep only a few hens. It is without question the foremost poultry monthly in this country, and readers of its articles on pure-bred chicks and their better care and keeping have come to realize that it is plain truth that there's "money in a hen." POULTRY SUCCESS has from 36 to 112 pages every issue; is beautifully illustrated and printed; has best writers; 16 years old; shows how to succeed with poultry.

Regular Subscription Price, 50 Cents per year.

SPECIAL OFFERS.—If you keep chickens or are in any way interested in them, we will send Poultry Success to you for one year for introduction, and mail free also a large illustrated practical poultry book for only the regular price, 50 cents; or three months' trial, only 10 cents. Sample copy free. Address to-day,

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UNITED OPINION
IN THE INLAND WE TRUST
JOURNAL FOR 50

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LEARN more about the great poultry industry. They make money while you sleep, and will live on what you throw away. Our paper tells how to make money on poultry, eggs, and incubators. Ask for sample copy now—it is free.

Inland Poultry Journal,
40 Cord B'ld'g,
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$1.50 in 10 Minutes

Earned by one of our agents getting ten subscribers for our monthly poultry, pigeon, and pet-stock paper. Full of practical articles from the best writers. Twenty-five cents per year; to agents, in clubs of ten, only 10 cts. each. Write at once.

Poultry Item, 10 Main Street, Fricks, Pa.

"The Best Farm Paper on Earth"

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MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer

W. M. BARNUM, EDITOR

Allen Building, St. Louis, Mo.

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Universal Manufacturing Comp'ny
Pittsburg, Pa.

OUR TREES

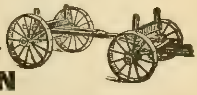
Etc., have been the standard of excellence for over half a century. The best always cheapest. We have hundreds of carloads of

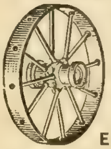
FRUITS AND ORNAMENTALS

Forty acres of **Hardy Roses**; none better grown. 44 greenhouses of **Palms, Ficus, Ferns, Roses**, etc. Direct deal will insure you the best and save you money. Correspondence solicited. Valuable catalogue free. 52 years. 1200 acres.

THE STORRS & HARRISON CO.
Box 35, PAINESVILLE, OHIO

FARMERS HANDY WAGON

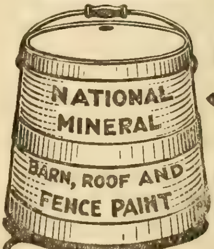




Low steel wheels, wide tires, make loading and handling easier. We furnish **Steel Wheels** to fit any axle, to carry any load. Straight or staggered spokes. Catalogue **free.**

EMPIRE MFG. CO., Box 91 F Quincy, Ill.

BARN PAINT



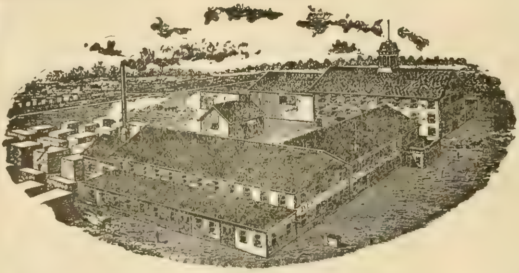
55¢ per gallon Freight Paid

National Barn, Roof and Fence Paint is the best paint on the market for the price. A durable, weather-proof mineral paint, thoroughly ground and thinned with pure kettle-boiled linseed oil. For barns, roofs, fences and every purpose where paint is exposed to the weather. Guaranteed to satisfy or *money back*. Made in 6 shades. Write for particulars how we can sell National Barn Paint for 55c a gallon *and pay the freight*, and how we can sell all kinds of paints cheaper than any other house. Remember we sell "*everything to everybody cheaper than anybody.*" Get our 1000-page catalogue and compare prices—that's the proof.

Ask us to tell you how to save 10 per cent from list prices on *everything you buy*—we have a plan you ought to know about—it will save you $150 to $250 a year.

Catalogue is now ready. Send for it today.

Co-operative Society of the National Supply Co.
Lansing, Mich. Chicago, Ill.



Kretchmer Manufacturing Company,
Box 60, RED OAK, IOWA.

BEE-SUPPLIES!

We carry a large stock and greatest variety of every thing needed in the apiary, assuring BEST GOODS AT THE LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for Catalog.*

DISCOUNTS FOR EARLY ORDERS.

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Trester Supply Company, Lincoln, Neb.
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I. H. Myers, Lamar, Col.
Southwestern Bee Co., San Antonio, Tex.

DITTMER'S FOUNDATION IS THE BEST!

Now is the time to prepare for next season **If you want to save money** on Foundation, working Wax for cash, and on a full line of Supplies. Write for prices, discounts, and samples of our Superior Foundation.

E. Grainger & Co., Toronto, Ontario, - - Agents for Canada.
The Bee & Honey Co., Beeville, Texas, - - Agents for Texas.

GUS DITTMER, -- AUGUSTA, WIS.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

BEST GOODS IN THE WORLD

Best bee-hives, sections, comb foundation, and every thing the bee-keeper needs. Now is the time to buy for next year's use. *Special discount on all bee-supplies not now in season.* Lewis' goods at factory prices. Catalog free. ::: ::: ::: :::

PACKAGES FOR MARKETING HONEY!

such as shipping-cases with glass front, tin cans, buckets, glass jars with patent spring sealers and glass stoppers, regular glass fruit-jars, etc. Sample mailing-blocks for mailing samples of extracted honey. Special prices on glass honey-jars and tin buckets. ::: :::

Fine - Italian - Queens - by - Return - Mail

Untested, 75 cts. Tested, $1.00.
Select untested, $1.00. Select tested, $2.00.

NEW CROP OF EXTRACTED HONEY!

If you can't supply the demand in your locality, write to us at once and tell us how much you can use, and get our price by return mail. We have an abundance of the finest honey in the world; 10 cts. for sample by mail and the 10 cts. returned with your first order. :::

PAINTS FOR HOUSES, BARNS, ROOFS!

We quote low prices on all grades of paints, and especially on paint absolutely pure. Let us quote on paint for your house. ::: ::: ::: ::: :::

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1004 E. Washington St.
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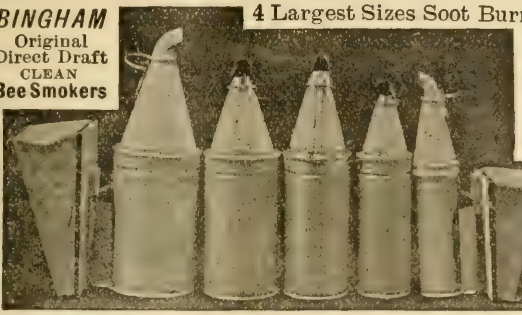

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out
And last from 5 to 21 years

Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

9 PER CENT DISCOUNT

on orders for
Lewis' Bee-supplies
accompanied by cash sent in

OCTOBER

This applies to all goods except honey-packages for current use. By return freight or express. Send to . . . .

York Honey and Bee Supply Co.,

(Not Incorporated)

Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells Street Cable Line from center of city to Ontario St.

141-143 Ontario St.,
Chicago, - Illinois,
H. M. Arnd, Mgr. Long Distance Phone, North 1559.

Catalog and prices on honey on application. If you want good goods at factory prices and prompt shipment, send your orders, or call on us.

BEESWAX WANTED!

26 cts. cash, or 28 cts. when taking bee-supplies in exchange — delivered here.

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

1-pound square jars, with corks, $5.00 per gross.
1-pound round jars, with caps, No. 25, $5.00 per gross.
12-ounce round jars with caps, $4.25 per gross.
Discount on quantities.
Catalog free.
Good extracted honey, 8 cts. a pound.

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

FOR SALE

HONEY-JARS

No. 25 honey-jar, porcelain cover, metal screw-cap, absolutely tight, holding one pound of honey net, in shipping-cases, one gross each.

1-gross lots	$4.50 per gross
5 " "	4.00 "

Also in Strong

Re-shipping Cases

of two dozen each, heavy corrugated partitions, sides, top, and bottom, a perfect protection. . .

1-case lots	$1.00 per case
5 "	.95 "
10 "	.90 "

Eight-ounce Tumblers

Tin caps, three dozen in re-shipping case

5-case lots.........	$ .85 per case
10 "	.80 "
20 "	.75 "

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82-84 Murray St., New York

Now's the Time to Order

Your bee-hives, sections, shipping-cases, berry-boxes, and crates for the coming season. By sending us a list of goods wanted we can save you money. :: ::

Sheboygan : Fruit-box : Company
Sheboygan, Wisconsin

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

"ESTABLISHED NEARLY TWENTY-FIVE YEARS"

LOWEST PRICES

BIG DISCOUNT - EARLY ORDERS

On cash orders before November 1....9 per cent
" " December 1....8 per cent
" " January 1......7 per cent
" " February 1 ...6 per cent
" " March 1 ....4 per cent
" " April 1 ....2 per cent

BEE-SUPPLIES

OF ALL KINDS

We have published *The American Bee-keeper* for 15 years (monthly, 50c a year); the largest and best illustrated magazine of its kind for the price published; edited by two of the most experienced bee-keepers in America. Sample copy free. Our large illustrated price list of supplies free on application. Address ::: ::: ::: :::

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Jamestown, New York

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NEW LONDON, WISCONSIN

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Send for Our FREE
New Illustrated Catalog and Price List

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey=boxes, Weed=Process Comb Foundation, Honey and Wax Extractors, Bee=smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

November 1......	9 per cent	February 1.......	6 per cent
December 1......	8 per cent	March 1	4 per cent
January 1........	7 per cent	April 1	2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513-515 Massachusetts Ave., = INDIANAPOLIS, IND.

HOW TO KEEP BEES

BY ANNA BOTSFORD COMSTOCK

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field.

"Finally, with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1.*

Price $1.00; Postage 10c Extra

The A. I. Root Co., - Medina, Ohio

SPECIAL NOTICE
Special Notices
By Our Business Manager

EARLY-ORDER DISCOUNTS.

The last ten days has brought us a nice lot of good-sized orders, taking advantage of the early-order discount. During this month of October the discount for early cash orders is 9 per cent. Forehanded people who can raise the money will not fail to take advantage of so liberal a discount on such goods as they are reasonably certain to need the coming season. Besides the saving in cost, which alone is worth taking advantage of, there is the further advantage of having the supplies on hand to prepare for use, as you have leisure and opportunity during the winter.

HONEY-PACKAGES.

We have received from the factory during the past month another carload of Simplex honey-jars. This is a very attractive jar for holding one pound of honey. We furnish them packed in cases of 2 dozen each, with packing between the jars so they are safe to ship again when filled with honey, without additional packing. Price $1.10 per case; 6 cases, $6.30. We received in this car 30 barrels which, by mistake, were packed 14 dozen to the barrel instead of 12 dozen, as usual. We offer these at $6.30 per barrel; lots of 5 barrels or over, at $6.00. For use in the home market where you do not have to ship, this is a bargain.

WIDE-MOUTH MASON FRUIT-JARS.

The carload price on Mason fruit-jars is over a dollar a gross higher this year than last. We carried over quite a large stock, which we will sell at the same prices as heretofore namely:

Pint............	doz., 52 cts.;	6 doz., $3.00;	12 doz., $5.75.
Quart...........	doz., 55 cts.;	6 doz., 3.10;	12 doz,, 6.00.
Half-gallon..	doz., 75 cts.,	6 doz., 4.10;	12 doz,, 8.00.

Triumph wrench, 15 cents each.

Ball's waxed rings, 5 cents per dozen. These are far superior to rubber rings for fruit-jars, and cheaper.

In addition to the regular style of Mason jars we have a stock of wide-mouth special Masons with 3-inch opening. These are especially desirable for canning large fruit whole, or for packing chunk comb honey. These jars are of extra quality, and cost $1.65 per gross more than the regular pattern. As we do not list them we offer our present stock at an advance of 10 cents per dozen, $1.20 per gross, on any size. They have zinc caps and rubber rings. We have no wax rings of the right size to fit these jars. They are a bargain at this price.

HONEY-CANS.

We received the past month a carload of five-gallon honey-cans which we have packed in cases of one and two each. We have also a good supply of ¼, ½, and 1 gallon cans. To help reduce this stock we will apply the early-order discount on cash orders for tin cans, even though not ordered in connection with other supplies for next season. This is a special offer, limited in time, and you should mention it when you order. This discount applies to catalog prices, and not to the special price recently quoted on half-gallon cans. Our stock of half-gallon cans with small screws is all sold. We have in stock only those with 1½ or 1¾ inch screws.

BEESWAX AND COMB FOUNDATION.

To compensate for the large early-order cash discount we propose to increase the trade price of wax; and until further notice we will pay 26 cts. cash or 30 cts. in trade for average wax delivered here or at our branches. When you take trade at 30 cts. a pound you will not be entitled to the early-order discount on the supplies.

The price of comb foundation was reduced Aug. 1 two cents a pound, and the revised price stands as follows:

GRADE.	Size, and sheets per pound.		In lots of 1 lb.	5	10	25	50
Medium Brood	7¾x16⅞	7 to 8	55	53	51	49	48
Light Brood.....	7¾x16⅞	9 to 10	57	55	53	51	50
Thin Super......	3⅞x15½	28	62	60	58	56	55
Extra Thin.....	3⅞x15½	32	65	63	61	59	58

The early-order cash discount applies to the reduced price of foundation, making a total net reduction of 7 to 8 cents a pound for October orders. We recommend that shipment of foundation be avoided in extreme cold weather, and to that end it would be well to get in your supply in the fall. Use your leisure time in winter to nail and paint your hives, put up sections, and prepare other articles ready for the spring rush.

Convention Notices.

The annual meeting of the Southeastern and Western Wisconsin Bee-keepers' Association will be held at the county commissioners' rooms, in the court-house at Winona, Minn., Oct. 24 and 25, at 10 A.M. of each day. All bee-keepers and their wives are cordially invited to attend, and help make the convention a success.

Fountain City, Wis., Sept. 20. Josef M. Reitz, Sec.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention at the Revere House, corner of Clark and Michigan Sts., Chicago, during the fat-stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are Dec. 5, 6, and 7. Rates at the hotel are 75 cts. for a room alone, or 50 cts. each where two occupy the same room. Meals are extra, or they may be secured at nearby restaurants. The program is as follows:

FIRST DAY.

Evening session, 7:30.—"Wax-rendering Methods and Their Faults," O. L. Hershiser, Buffalo, N. Y.; "Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-keeper?" by Hildreth & Segelken, New York.

SECOND DAY.

Morning session, 9:30.—"How many Bees shall a Man Keep?" by E. D. Townsend, Remus, Mich.; "Short Cuts in Bee-keeping," by M. A. Gill, Longmont, Colo.; "Producing Comb Honey and Extracted Honey on the same Colony," by Jas. A. Green, Grand Junction, Colo.; question-box.

Afternoon session, 2:00.—"The Control of Increase," by L. Stachelhausen, Converse, Texas; "Migratory Bee-keeping," by R. F. Holtermann, Brantford, Can.; question-box.

Evening session, 7:30.—"Contagious Diseases among Bees, and how to Distinguish Them," by Dr. Wm. R. Howard, Ft. Worth, Texas; "Experimental Apiculture," by Dr. E. F. Phillips, Washington, D. C.

THIRD DAY.

Morning session, 9:30.—"The Honey-producers' League—Can it Help Bee-keepers?" by R. L. Taylor, Lapeer, Mich.; "The Business End of Bee-keeping," by N. E. France, Platteville, Wis.; question-box.

Afternoon session, 2:00.—"In what Way can Bee-keepers Secure Their Supplies at Lower Prices?" by W. H. Putnam, River Falls, Wis.; "How the Producer and Dealer may Advance their Mutual Interests," by Fred W. Muth, Cincinnati, Ohio; question-box.

Evening session, 7:30.—"What have We to Hope for from the Non-swarming Hive?" by L. A. Aspinwall, Jackson, Mich.; "Poultry-keeping for the Bee-keeper," by E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Sec.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

Officers:

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C. P. DADANT, Hamilton, Ill., Vice-president.
W. Z. HUTCHINSON, Flint, Michigan, Secretary.
N. E. FRANCE, Platteville, Wis., Gen. Mgr. and Treas.

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AIKIN HONEY-BAGS.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5.50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.60	5000 @	10.00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8.75	1000	13.50
5000 @	8.25	5000@	13.00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names, $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over.

The A. I. Root Co. - Medina, Ohio.

THE BANK THAT PAYS FOUR PER CENT

The possessor of small savings is confronted by a difficult problem. ❧ First, he wants to make his savings secure. ❧ Second, to so invest them that he will receive a reasonable return. ❧ Third, to place them in such a way that he will be able to draw upon them should occasion require. ❧ The Savings Deposit Bank offers the most natural and plausible solution of the problem. ❧ Savings deposited with it are absolutely safe, and earn four per cent interest compounded twice a year. ❧ This is a higher interest than is realized from Government bonds and other safe investments, and there is additional advantage in the fact that money is always available on proper notice.

YOU CAN BANK BY MAIL

Accounts may be started with any amount from one dollar up.

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DEPOSIT BANK COMPANY,
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ASSETS OVER HALF MILLION DOLLARS
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THE BEGINNER

in bee-keeping can find just the information he needs in the "Beginners' Department" of the *Rural Bee-keeper.*

THE AMATEUR

can find instruction in our "Question Department," and $ $ $ in our "Market Reports." ::: ::: :::

THE = FOREIGN = BORN

bee-keeper will get news from home in our "Beedom Abroad." ::: :::

THE PROFESSIONAL

can interchange ideas with the best bee-keepers in the world through the columns of *Rural Bee-keeper.* Subscribe now. $1.00 a year. Monthly.

Bee-hives === Honey-boxes

All Kinds. Catalog Free.

Represented by J. J. Wilder, Cordele, Ga.; S. L. Huth & Son, San Antonio, Tex.; Morgan Bros., Vermillion, S. D. For information address

W. H. PUTNAM,
RIVER FALLS, : WISCONSIN

Prices of Queens	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO, TEX.

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QUEENS AND BEES

We allow early-order discounts.

64-page catalog free.

J. M. JENKINS, WETUMPKA, ALA.

RED-CLOVER AND ITALIAN QUEENS

ROOT'S STRAIN, FOR SALE.
Untested, $1; Select Tested $1.50.

Charles A. Myers, Leipsic, Ohio.

LOTS OF GOOD QUEENS

Untested, $1.00 each; six for $5.00, or $9.00 per dozen. Tested, $1.50 each; select, $2.50. Bees for sale in car lots for spring delivery. Correspondence solicited. Agents for Dittmer's foundation for this State. Get prices.

THE BEE AND HONEY COMPANY,
WILL ATCHLEY, MGR. **BEEVILLE, BEE CO., TEX.**

LAST CALL

One hundred fine Carniolan queens, bred from imported mothers, 70 cts. each, or $7.00 per dozen. Money-order office, San Angelo.

J. E. CHAMBERS, - VIGO, TEXAS.

Caucasians!

The celebrated bees from Russia; purely mated in distant yard. We have 28 strong colonies of Pure Stock. Send for descriptive circular.

E. L. PRATT, SWARTHMORE, PENN.
IMPORTED QUEENS. GENTLE STOCK.

THREE QUEENS FOR $1

To those who have not tried my queens. Only one lot to each person. They are not cheap John queens, but are good ones offered at this price to get you to try them. Filling all orders promptly, but if this ad. causes a rush I reserve the right to hold all orders and fill in turn. Three untested Italian queens, $1.

S. F. TRECO, - - Swedona, Ill.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

H. M. Parker, Jr., James Island, S. C.

How the Canadians Like

MOORE'S - STRAIN - OF - ITALIANS

J. L. Byer, Markham, Ont., Can., says: "I use a very large hive, and have been getting Italian stock from different breeders, and yours are the only Italians that fill up my big hives with rousing big colonies. They winter splendidly outdoors; are hustlers after honey, and not one queen has yet cast a swarm."

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.00 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free :: ::

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, MORGAN, PENDLETON CO., KY.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be a very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, 60c each; six for $3.30, 12 for $6.00. Free circular.

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HONEY QUEENS Laws' Italian and Holy Land Queens

Plenty of fine queens, and of the best strains on earth. Also, I offer a carload of bees on special correspondence. Prices: One queen, any race, $1.00; six for $5.00. Nuclei—one frame, with queen, $1.75; two-frame, $2.25; three-frame, $2.75. For the next 60 days I will sell fifty Laws' Improved Baby nuclei, in flat, prepaid to any point in the U. S., for $7.50. A first-class eight-frame hive complete, 1-story, 60c; 1½-story, 80c. Full-depth extracting-supers, empty, 26c. Hoffman frames, $1.50 per 100. Circular on application.

W. H. LAWS, Beeville, Texas.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

Last Chance for Clover Queens in 1905. Guaranteed to work red clover as well as white. Fine tested queens, $1.00; untested, 65c; doz. $7.

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Our Syracuse, N. Y., Branch

is prepared to ship promptly all Bee-keepers' Supplies, giving the same discount as Medina.

The A. I. Root Co., Syracuse, N. Y.

F. A. Salisbury, Manager.

BY WAY OF SUGGESTION!

Order Your Goods Now for Spring Use

Nine per cent Off for October Cash Orders

FOR INSTANCE:	Five Danz. hives, AED64M, complete in flat	$11.00	
	Less discount	.99	$10.01
AND AGAIN:	Five Dov'd hives, AE64P8, complete in flat	9.75	
	Less discount	.88	$8.87
OR: Is it Sections and Foundation	2M sections, 1½-in. plain, No. 1	9.25	
	10 lbs. thin super foundation	5.80	
		15.05	
	Less discount	1.51	$14.54

Send us your list of goods wanted, and let us quote you prices. . . . And Root's goods too. . . . Sold in Michigan by us.

M. H. HUNT & SON, BELL BRANCH, MICH.

9 PER CENT DISCOUNT IN ::OCTOBER::

We have arranged the following discounts for early

CASH ORDERS

this season:

Before November 1	9	per cent
" December 1	8	"
" January 1	7	"
" February 1	6	"
" March 1	4	"
" April 1	2	"

DEALERS.—A partial list of dealers (wholesale and retail) in Root's goods will be found on the first inside cover page of this issue. A list of local dealers may be had by writing us at Medina. Save time and freight by ordering of the dealer nearest you.

These discounts are intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about ten per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books and papers, labels, and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog. ... ...

THE A. I. ROOT CO.

FACTORY AND EXECUTIVE OFFICE

MEDINA, OHIO

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New York—44 Vesey St.
Mechanic Falls, Me.
Philadelphia—10 Vine St.
Syracuse, N. Y.
St. Paul—1024 Miss. St.
Washington, D. C.—1100 Maryland Ave.
Havana, Cuba—Obrapia 14.
Kingston, Jamaica—115 Water Lane.
Agencies everywhere—see the first inside cover page.

BEE-KEEPERS' EARLY DISCOUNTS

Now is the time to send in your order for goods for use next season, and for all orders where cash accompanies we allow the following discounts: : : : :

Before November 1	deduct 9 per cent
Before December 1	deduct 8 per cent
Before January 1	deduct 7 per cent
Before February 1	deduct 6 per cent
Before March 1	deduct 4 per cent
Before April 1	deduct 2 per cent

Freight rates from Toledo are the lowest. Can take honey and beeswax in exchange for supplies if you desire. Send for free illustrated catalog. It describes and illustrates every thing for both poultry and bee keepers. . .

GRIGGS BROTHERS
523 Monroe St., Toledo, O.

Dadant's Foundation

It excels. We guarantee satisfaction. . . . .

Bee-supplies

of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

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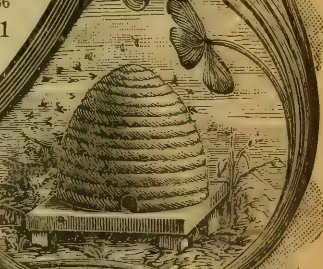


THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Root's Bee-keepers' Supplies at Convenient Distributing Points.

Well-known Dealers. The dealers, whose names follow, are well known to bee-keepers. They have been, for the most part, long established in the bee-supply trade, and have a knowledge of the business most valuable indeed to the bee-keeping fraternity. Their advice may be had on any question of supplies, etc., for the asking.

The Large Stocks. Nowhere else is it possible to find such well-assorted stocks of goods for bee-keepers as are carried by dealers in Root's Goods. No matter whether you require a little five-cent article or a carload of goods, these dealers can serve you promptly. Stocks are frequently carried amounting to $5000 and upward.

Shipping Points. You will observe that these dealers have excellent shipping facilities—guaranteeing you quick delivery and low freight rates.

Medina Prices. The prices, terms, discounts, etc., are identical with the home office at Medina (with rare exceptions). Full particulars may be had before ordering, if desired, by writing the dealer nearest you. You can, however, use our Medina catalog and terms, and, if any variation, your dealer will advise you, if requested, before shipping.

Other Dealers. Besides the following list, there are many others who handle some of Root's Goods. The following is by no means complete for hundreds of dealers come to us for many of the goods of which we are the exclusive manufacturers. *Insist on getting Root's Goods.*

Local Dealers. In addition to the following list who carry large stocks, and furnish at both *wholesale* and *retail*, we have in every State a large number of local dealers who handle our goods exclusively. As there are over 500 of these dealers, space will not permit giving their names at this time; but information will be given by us, on request, to any bee-keeper regarding the dealer nearest him handling Root's Goods.

Canada--E. Grainger & Co., Toronto, Ont.

Colorado--Fruita Fruit & Produce Association, Fruita; The L. A. Watkins Mdse. Co., Denver, Colo.

District of Columbia--The A. I. Root Company, Washington, D. C.

Georgia--Howkins & Rush, 124 Liberty St., Savannah, Ga.

Indiana--Walter S. Pouder, Indianapolis, Ind. Vickery Bros., Evansville, Ind.

Iowa--Joseph Nysewander, Des Moines, Iowa.

Illinois--The A. I. Root Company, 144 E. Erie St., Chicago, Ill.

Kansas--Carl F. Buck, Augusta, Butler Co., Kan.

Mississippi--George A. Hummer, Brazelia, Miss.

Massachusetts--F. H. Farmer, 182 Friend St., Boston, Mass. W. W. Cary & Son, Lyonsville, Mass.

Maine--The A. I. Root Company, Mechanic Falls, Me.

Maryland--Rawlings Implement Co., Baltimore, Md.

Michigan--M. H. Hunt & Son, Bell Branch; George E. Hilton, Fremont, Mich.

Minnesota--The A. I. Root Company, 1024 Mississippi St., St. Paul, Minn.

Missouri--John Nebel & Son, High Hill, Mo. Springfield Seed Co., Springfield, Mo. Blanke & Hauk, St. Louis, Mo.

New Mexico--Edward Scoggin, Carlsbad.

New York--The A. I. Root Company, Syracuse, N. Y. The A. I. Root Company, 44 Vesey St., New York City, N. Y.

Ohio--McAdams Seed Company, Columbus Grove, O. Griggs Bros., 521 Monroe St., Toledo, O. C. H. W. Weber, 2146 Central Ave., Cincinnati, O.

Pennsylvania--Prothero & Arnold, Dubois, Pa. The A. I. Root Company, 10 Vine St., Philadelphia, Pa.

Texas--Texas Seed & Floral Co., Dallas; Udo Toepperwein, San Antonio, Tex.

Virginia—W. E. Tribbett, Spottswood, Va.

The following buy our goods in carload lots but supplement them with local-made goods.

Alabama--J. M. Jenkins, Wetumpka, Ala.

California--Calif. Nat'l Honey-producers' Ass'n, Los Angeles; Madary Planing Mill, Fresno, Cal.

Oregon--Portland Seed Co., Portland, Ore.

Texas--D. M. Edwards, Uvalde, Tex.

The A. I. Root Company, : Medina, Ohio.

C. H. W. Weber,

Headquarters for

Bee-Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Complete stock for 1906 now on hand. Freight rates from Cincinnati are the lowest, especially for the South, as all freight now goes through Cincinnati. :: :: ::

9% DISCOUNT

For Cash Orders Received in

OCTOBER.

This applies to all goods with exception of shipping-cases and other honey packages for current use. :: :: ::

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Toledo.—The market on comb honey at this writing remains firm, with a good demand. The cool weather and exhaustion of fruit usually brings on a demand for honey at this time of the year. We quote fancy white clover in a retail way at 14@15; No. 1, 13@14; amber, 12. Extracted white clover, in barrels, 6½@7; in cans, 7@8½. Beeswax, 26@28. We look for a good demand for honey until December first.

Oct. 7. Griggs Brothers, Toledo, Ohio.

Chicago.—The demand for comb honey is about as usual for the season of year. Offerings from the surrounding States are fully equal to the past season, but that from Colorado and the middle western States are not. No. 1 fancy white comb sells at 13@14, with an occasional sale at 15; off grades, embracing crooked combs, etc., sell at 11@12; amber grades, difficult to place at 9@10. Extracted white, 6@7, according to kind, body, and flavor, also package; ambers, 5½@6½. Beeswax selling upon arrival at 30, if clean; off grades, about 2c less.

R. A. Burnett & Co.,
Oct. 5. 199 South Water St., Chicago, Ill.

Cincinnati.—Reports from different parts of the country give evidence of an almost total failure in the comb-honey crop, excepting the points in the North. We are selling this Northern comb honey at 14@16, by the case. The demand for extracted honey is about equal to the receipts, which are good. We continue to sell amber in barrels at 5¼@6; white clover, 6½@7½. For beeswax we are paying 30c, delivered here. We wish to call the attention of the producer to the above quotations, who mistakably expects to receive these prices for his product. The above are our selling prices.

The Fred W. Muth Co.,
Oct. 7. 51 Walnut St., Cincinnati, Ohio.

Detroit.—The demand for comb honey is a little better since last report, and market a little more firm. The shipments coming in bring 12@12½ for mixed consignments from No. 1 to fancy. Practically no dark honey on the market. Extracted white clover, 6@6½. Beeswax, 26@28.

M. H. Hunt & Son.
Oct. 8 Bell Branch, Mich.

Schenectady.—Honey is arriving freely, and meeting with a very good demand. The crop of buckwheat will not prove as large as expected in this section, and the quality is not fancy. No change in prices from last quotations. We are selling as follows: Fancy white, comb, 14@15; No. 1, 13@14; No. 2, 12@13; buckwheat, 11@12. Extracted white, 6½@7; dark, 5½@6. Most of the light extracted seems to be a mixture of basswood, clover, etc. Could sell some good clover to good advantage. Beeswax, 28@30. Write us before shipping.

Chas. McCulloch,
Oct. 10. Schenectady, N. Y.

Boston.—Owing to the warm weather prevailing, the demand for honey has not come up to previous years. This, together with the very large quantity being carried over from last year, both by jobbers and retailers, tends to keep the price and demand down. We quote fancy white comb 15; No. 1, 14; No. 2 12. Extracted honey, 5½@7.

Blake, Scott & Lee,
Oct. 5. 31-33 Commercial St., Boston, Mass.

St. Louis.—Our honey market is in about the same condition as last quoted, as follows: Southern amber, in barrels, 5½; in cans, 6; California light amber, in five-gallon cans, 6½@7. Comb honey, fancy white, 13@14; A No. 1, 11@12; No. 1, 9@10 The supply of comb honey is rather scant at the present time. Beeswax, 28, for prime.

R. Hartmann & Co.,
Oct. 6. 14 So. Second St., St. Louis, Mo.

Cincinnati.—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep the prices high. We quote as follows: Fancy water-white and No. 1 comb, 14@16; No. 2, 12½@14. Extracted seems to be more plentiful, and we quote same in barrels, light amber, 5¼@5½; in cans, ½c more; white clover, 7@8. Beeswax, 26.

C. H. W. Weber,
Oct. 7. 2146-8 Central Ave., Cincinnati, O.

Denver.—The demand for new comb honey is fair, and prices range as follows: No. 1 white comb, per case of 24 sections, $3.00@$3.25; No. 2, $2.75. Extracted white, 7@7½; light amber, 6¾@7. For clean yellow beeswax we pay 24c, delivered here.

Colorado Honey-producers' Ass'n,
Oct. 9. 1440 Market St., Denver, Colo.

Philadelphia.—Honey has been arriving quite freely in the last ten days; but as the quantity in the producers' hands is somewhat uncertain, the market is rather fluctuating, and sales have been made at various prices, which hardly fixes the market. We quote fancy comb, 14@15; No. 1, 13; amber, 11@12. Extracted, white, 7; amber, 6. Beeswax sells freely at 28c. We produce honey, and do not handle on commission.

Wm. A. Selser,
Oct. 10. 10 Vine St., Philadelphia, Pa.

Buffalo.—Demand for honey is improving. Prices are no higher and not likely to go any higher. Fancy white comb, 13@14; A No. 1, 13@13½; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11; amber, 10@11; buckwheat, 10@11. Extracted, white, 7@7½; amber, 6@6½; dark, 5@½6, Beeswax, 28@30.

W. C. Townsend,
Oct. 10. Buffalo, N. Y,

WANTED

FANCY COMB HONEY IN NO-DRIP SHIPPING CASES, ALSO EXTRACTED HONEY. IF YOU HAVE ANY TO OFFER, QUOTE US YOUR ROCK BOTTOM CASH PRICE DELIVERED HERE, AND MAIL US A SMALL SAMPLE OF THE EXTRACTED HONEY. WE BUY EVERY TIME THE PRICE IS RIGHT, AND REMIT PROMPTLY.

THE FRED W. MUTH CO.

No. 51 WALNUT STREET, CINCINNATI, OHIO.

KANSAS CITY.—The honey market here is strong at present, at $3.25 per case for No. 1 and fancy white in 24-section cases; amber and other grades are selling for less according to quality. The demand is good, every thing that we can get moving promptly. Extracted sells at 6½ cts. Beeswax, 28 cts.

C. C. CLEMONS & CO.,
Oct. 9. Kansas City, Mo.

ATLANTA.—The honey market is very easy here; but little coming in with light demand, We quote you as follows: Fancy white, 12@13; A No. 1, 11@12; No. 1, 10 @11. No demand for extracted.

JUDSON HEARD & CO.,
Oct. 9. 110 So. Forsyth St., Atlanta, Ga.

FOR SALE.—Extracted honey at 6 to 8½ cts.; sample, 10 cts. I. J. STRINGHAM, 105 Park Place, New York.

FOR SALE.—New clover honey in 60-lb. cans.
C. J. BALDRIDGE, Kendaia, Seneca Co., N. Y.

FOR SALE.—Clover and buckwheat honey, in 60-lb. cans; sample free. JAS. MCNEILL, Hudson, N. Y.

FOR SALE.—2000 lbs. choice buckwheat honey in new 60-lb. cans, at 5c. Clover honey all sold.
G. A. BLEECH, Jerome, Mich.

FOR SALE.—2000 lbs. buckwheat extracted honey, in barrels and 60-lb. cans, at 6c, f. o. b. Sample free.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—43,000 lbs. of choice extracted buckwheat honey at 6¼ cts. put up in kegs holding about 160 lbs. each. E. W. ALEXANDER & SON, Delanson, N. Y.

FOR SALE.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat.
G. H. ADAMS, Mill St., Bellevue, Schenectady, N. Y.

FOR SALE.—Clover or buckwheat honey, comb or extracted, in large or small lots. Write for price, and quantity desired. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—A few hundred pounds more of that superior clover-basswood blend of extracted honey at 7½c in 60-lb. cans, two cans in a case. None finer for table use. CLINTON F. PULSIFER, Nessen City, Mich.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

FOR SALE.—12,000 lbs. new clover honey, comb and extracted; latter in five-gallon cans, one and five pound pails, and glass jars. State your wants, and we will quote a price that is right.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

FOR SALE.—Fine grade buckwheat honey of extra-good body and fine flavor; just right to go with buckwheat cakes. Shipped in 60-lb. cans, two cans in a case. Price, 6 cts. per lb., f. o. b. here; sample by mail, free. Clover honey all sold.
O. H. TOWNSEND, Otsego, Mich.

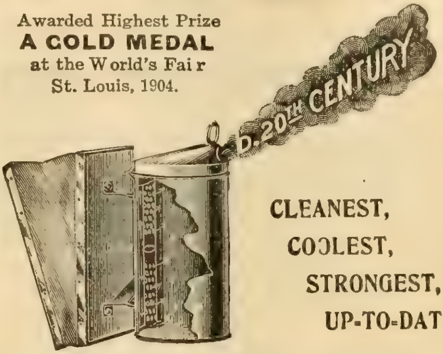
WANTED.—Comb and extracted honey. State kind, quantity, and how put up.
CHAS. KOEPPEN, Fredericksburg Va.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St. New York.

WANTED.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
THOS. C. STANLEY & SON,
Manzanola, Colo., and Fairfield, Ill.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

F DANZENBAKER, - MEDINA, OHIO.

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12-lb., $8.00; 20-lb. Danz., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

WANTED.—White-clover comb and extracted honey.
B. WALKER, Clyde, Ill.

WANTED.—Light amber extracted honey. Please send sample. FRED W. BUTTERY, Rt. 43, Norwalk, Ct.

WANTED.—Honey in any quantity. State price, quantity, and quality. Address JUDSON HEARD,
110 South Forsyth St., Atlanta, Ga.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ills.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb honey, all kinds of nuts, beans, popcorn, and maple sugar.
C. F. PERKINS, Columbus, Ohio.

WANTED.—We are in the market for buckwheat honey, both comb and extracted. When writing be sure to tell how it is put up, mentioning the grade; if comb, No. 1 or fancy; and send sample if it is extracted. We do not want it mixed with other flavors.
THE A. I. ROOT CO., Medina, Ohio.

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 23,000. Reaches every State and sixty foreign countries.
Established in 1873. 52 pages, semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

A. I. ROOT, Editor Home and Garden Department.
E. R. ROOT, Editor Apicultural Department.
J. T. CALVERT, - Business Manager.
A. L. BOYDEN, - Advertising Manager.

TERMS---$1.00 per annum; two years, $1.50; three years, $2.00; five years, $3.00, In Advance.

Postage is Prepaid by the publishers for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required,

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU. 142 Faubourg St. Denis. *Per year, postpaid, 5¼ fr.*

Kingston, Jamaica. F. A. HOOPER. 115 Water Lane. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO. 24 Castle St. *Per year, postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publishers.

Find enclosed....................for which please send me Gleanings in Bee Culture..........months, and..................................as per offer..........
Please continue sending Gleanings until otherwise ordered.

NAME ....

POSTOFFICE ....

COUNTY .... STATE ....

DATE .... If you want Gleanings discontinued at expiration, check here ( )

SUBSCRIPTION CONTEST

25 PRIZES

1st Prize	$10.00 Red-clover Queen.
2d Prize	$7.50 Red-clover Queen.
3d Prize	$5.00 Red-clover Queen.
4th Prize	$3.00 Red-clover Queen.
5th Prize	$2.00 Red-clover Queen.
6th to 15th Prizes	Half-leather A B C.
16th to 25th Prizes	Standard Corneil Smoker.

Now is the best season of the year to obtain subscribers to GLEANINGS IN BEE CULTURE. For this reason we are inaugurating our First Prize Subscription Contest. We wish our friends everywhere to enter. We are making the prizes very liberal, and many of them, so that with but little effort you can get a reward over and above our regular commissions. It is easy to obtain subscribers among your bee-keeping friends. We make it still easier by supplying sample copies and advertising matter. If you decide to enter this contest, fill out the blank below and we will start you at once. We pay good commissions, which insures good pay for your work whether you secure a prize or not.

CONDITIONS

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between September 15 and December 31, 1905.

SECOND.—To be eligible to any of the first five prizes, contestant must have at least five yearly subscriptions, or equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—Contest closes December 31, and announcement of winners will be made in January 15th GLEANINGS.

FIFTH.—That subscriptions can be sent in any time, but must be plainly marked "For Subscription Contest."

SIXTH.—GLEANINGS reserves the right to reject an application when it would interfere with an agent already appointed in any one county.

SEVENTH.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE CUT HERE

Gleanings in Bee Culture

Subscription Contest Department

Date.......................................

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name..

Co.................................*P. O*......................................

I can use.........*sample copies of Gleanings.* *State*....................

65 Lessons

IN BEE-CULTURE

For $1.00

As most readers of Gleanings know, Bee-Culture is a most fascinating and interesting study: Bee-Keeping a pleasant and profitable occupation. In the Lessons, one of which is sent each week, we give you a practical education in bee-culture. If you are not now a regular reader, send ONE DOLLAR for a year's subscription to The American Bee Journal, the oldest bee-paper published in America, and the paper will be sent to you for the balance of this year and all of 1906. Each issue of the Journal is one of the Lessons in this series, and contains articles by the most successful bee-keepers in the world. Every page is full of helpful hints and wise counsel — a real education for amateur and adept.

THE AMERICAN BEE JOURNAL

is not only the oldest bee-paper in America but it is one of the best published. It is constantly being improved and made better. The aim and ambition of its publishers is to make it so good that no bee-keeper who expects to succeed will want to be without it. They propose doing this by making it worth many times its cost to subscribers. 52 issues for $1.00 brings it within the reach of all. Some subscribers have said that one issue has proven to be worth a year's cost to them.

The character and quality of the contents of the American Bee Journal are keynotes to its success and usefulness, and a guide to what its future will be. Its many departments, each conducted by practical writers of national repute, cover every phase of the bee-business. Each issue of the Journal is helpful at the particular time it is published — touching on timely topics, solving the problems and perplexities of the hour.

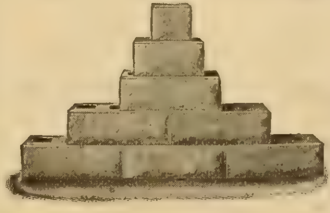
The Editor is assisted by a corps of able correspondents whose writings are especially interesting and beneficial to every bee-keeper in the land. "Convention Proceedings" are often reported almost verbatim, so that the reader may stay at home and yet enjoy the conventions wherever held. "Our Bee-Keeping Sisters" department is particularly interesting to the gentler sex. Many of them are contributors who always have something to say worth reading.

"Hasty's Afterthoughts" and "Dr. Miller's Question-Box" alone are worth many times the $1 charged for the Journal, while the department, "Reports and Experiences," is so full of news notes that the bee-keeper reading each issue keeps posted on the doings of the whole bee world. "Market Quotations" gives the conditions of the prominent markets. "Miscellaneous News Items" covers various subjects and is always interesting.

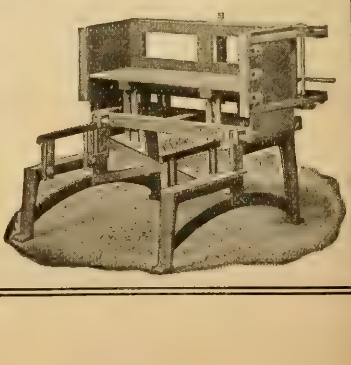
If you keep bees, you simply can't afford to miss a single issue of the American Bee Journal. Send $1.00 by return mail and get not only the 52 Lessons in 1906 but the balance of this year FREE, if you are a new subscriber. Or, send 20 cents and get the last 13 Lessons of 1905 as a "Trial Trip." Address,

George W. York & Co., 334 Dearborn Street, Chicago, Ill.

These Blocks



were made on one of our $50 concrete building-block machines. Prices range from $50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement makes from 25 to 35 blocks. Write for descriptive circular and list.



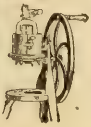
Medina Concrete Company

Medina, Ohio

A SPECIAL OFFER

The BEE-KEEPERS' REVIEW is now making an unusually attractive offer to new subscribers. Send ten cents for three late but different issues and this may apply on any subscription sent in during the year. With the three numbers will be sent a special offer to new subscribers; also a description of the new and greatly enlarged edition of "Advanced Bee Culture," which will be out soon, and a specially low clubbing price will be offered to those who order it *now* in connection with the REVIEW.

W. Z. Hutchinson, Flint, Mich.



IF YOU WANT EGGS

Lots of them, feed green bone fresh cut, rich in protein and all other egg elements. Get twice the eggs, more fertile eggs, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER **10 Days Free Trial.** No money in advance.

Makes bone cutting simple, easy and rapid. Try it and see. Open hopper, automatic feed. Cuts all bone with adhering meat and gristle. Never clogs. Don't buy until you try it. Cat'lg free.

F. W. MANN CO., Box 37 Milford, Mass.

If you only knew how much money you could save and how durable it is, you would surely use

PAROID

ROOFING

for roofs and sides of all farm buildings. Easily applied by any one. Water, spark, acid, gas, heat and cold proof. Light slate color; contains no tar; does not taint rain water. Illustration above shows largest stock barn in Minnesota, covered with Paroid.

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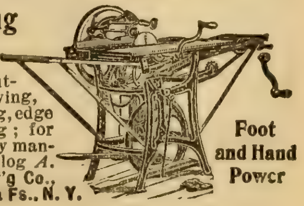

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

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Stray Straws

By Dr. C. C. Miller.

W. S. M. ASKS whether the bees of two colonies will work in the same super, the two colonies being in a double hive with only a screen division between them, the super to cover only half of each hive. Sure. But perhaps it might be better to increase the size of your super.

MR. EDITOR, when I asked, page 1005, whether you "really make a practice of shaking all the bees off the combs" in a shallow brood-chamber or super, I was not quibbling on the word "all," as you seem to think, but merely trying to learn if you make a practice of *shaking* out bees without taking out combs. The second picture, page 1022, seems to answer in the affirmative.

A NEW KINK is that way of getting big cakes of wax without cracks—pouring from one tub to another, p. 1013. With smaller cakes it may be done this way: Have a big lot of water under the wax, and cover up the whole so warm that it will be a long time cooling off. Or, put the melted wax in the oven of a cook-stove before the fire is out at night, and close the oven door, leaving it all night to cool.

SOME OF THE variations of the shaken-swarm plans are bringing us around to the plan given some years ago by G. W. Demaree — a plan well worth trying by producers of extracted honey. Raise the brood to a second story, leaving in the lower story the queen with frames of foundation, an excluder between the stories. Result, no swarming. A few, however, reported swarming. It's easier than shaking swarms where it works.

F. C. HOCHSTEIN'S article, page 1014, reminds me of a plan for getting bees off combs in practice here. Take hold of one end of the top-bar, and strike the other end of the top-bar on the ground in front of the hive. But don't strike the end of the bottom-bar on the ground unless you want the comb smashed. [It strikes me that this would be a severe strain on the frame. A good hard blow would have a tendency to make the frame a little out of square, would it not?—ED.]

IF YOU HAVE used a string in transferring combs, don't lift out a brood-frame, cut the string, and then unwind, as advised on page 1030, but without taking out the frame make a single cut the whole length of the top-bar with a pocket-knife, and the thing is done. But I suspect rubber bands are very much better. What size, Mr. Editor? [The rubber bands I had in mind were the ordinary small ones used in the office, rubber links about 1½ inches across the long way. I never tried them, but can see no reason why they would not be just the thing.—ED.]

GENERALLY, if a man should say to me that, to prevent the absconding of a newly hived swarm, there should be no large opening above, I'd be likely to think, "My dear fellow, you're standing on your head." But when one in whose word I have so much confidence as I have in that of S. E. Miller says it, p. 1015, I'm ready to move a reconsideration of the question. Can it be possible that I've always been wrong in advising to move back the cover for the first day or two after hiving? I may say, Bro. Miller, that, although my bees do lots of gluing, they don't generally glue up a crack of ¼ inch on top. That alone, however, doesn't prove me right.

AN OBJECTION to piling hives in cellar in the way illustrated on p. 1014 may be worth mentioning. Bees in cellar have spells of stirring up and roaring, and the stirring-up of one colony is communicated to others in that sort of piling, so the bees will have spells of stirring up oftener than if detached. [You are correct; but if room is limited, what are you going to do? To put the hives on shelving, each hive where it can be moved without disturbing the others, would be expensive, and wasteful of room. Would not the cost of the shelving pay for an occasional colony that might be lost because it could not be removed from the immediate vicinity of another colony that was "creating a disturbance"?—Ed.]

"Bees will yield as much money as any outdoor pursuit, and a great deal more than the poultry business on the average," page 1029. I don't arise to contradict that—merely to say I'd like to see figures for it. [I have not the figures; but I do have a definite knowledge of several young men who have gone into the poultry business quite extensively, and sunk every cent they had. I can recall but very few, outside of the farmer, whose chickens can get feed at little or no cost, and the resident in town, who keeps four or five hens, or perhaps a dozen, to convert the refuse from the house into eggs, who have ever been able to make money in the hen business.—Ed.]

Yellow-jackets have their abode in a box that's under one of C. M.'s hives, the hive and super being very heavy with honey. He wants to know what to do. One way is to get some one to help lift off the hive, you and he being well veiled and gloved, smoking the yellow-jackets heavily, and then destroying the nest, killing as many of the beasts as possible. Another way would be to go in the evening and give them a good dose of bisulphide of carbon. Possibly you could squirt in enough gasoline to do the business. [The latter plan, in my opinion, is altogether better. My one experience with hornets leads me to believe that they must not be tackled in the open. Even at night I think I would squirt in the bisulphide as soon as possible and get away.—Ed.]

G. M. Doolittle, p. 1025, says that, with the narrow stripe of yellow on the fourth segment of the abdomen, "came the contention that the Italian was *not* a pure race of bees. . . . .for, if bees showing three bands are pure, what are those showing yellow on four bands?" If I understand the trend of that argument, it is that three bands can not be so pure as something with more yellow. That argument will hardly hold. If three bands be the mark of the pure type, then any change either toward less or more yellow will be getting away from the pure type. If the argument be that Italians are not pure because they have varied, then it will be hard to find any thing pure under the sun, for sports are to be found in most of the things that are called pure. [Dr. Miller is correct. All pure races sport more or less; but these sports always tend to revert to the original type; and this tendency, to one set of markings or characteristics, is the best evidence of the purity of the stock. The five-banders, *if left to themselves*, will inevitably work back to three bands.—Ed.]

Not so certain that the worms mentioned by L. L. Brockwell, p. 1028, are only the old familiar moth-worms. One year, and I rather think never but that one year, I had some cases much as he describes. Here and there would be a group of three or four young bees in their cells, uncapped and wriggling around as if trying hard to get out, but unable to do so because held fast at the bottom. On digging out the bees I found a small worm at the bottom—never a large worm, and never a gallery web. Either it was something different from the common wax-worm, or the common worm performed in those few cases in a way different from any thing I ever saw before or since. I am strongly of the opinion that it was not the common wax-worm. [You are doubtless correct; and these little worms that you speak of may be the cause of the trouble mentioned by a correspondent elsewhere in these columns.—Ed.]

Early-order discounts. The *American Bee Journal* figures out in a way that can't be disputed that the man who gets a discount of 10 per cent on supplies bought before Oct. 1, which supplies he would otherwise buy at full prices the first of next June, is getting interest on the money advanced at the rate of $16\frac{2}{3}$ per cent per annum. Let's figure what it will be to order in October and get 9 per cent discount rather than to wait till June 1. Nov. 1 to June 1, 7 months. Nine per cent off $100 leaves $91. That is, $91 gains $9 in 7 months; and that's at the rate of $16\frac{9}{10}$ per cent per annum. Good interest. [A good many people have not yet learned that one way to earn money is to be forehanded. In this deal, both parties are the gainer. The manufacturer is willing to work for less profit in the dull season, in order that he may keep his men going. The bee-keeper not only saves money, but he gets his stuff at a time of the year when he has leisure, can put it together, and have it all ready for the spring rush. Delays in getting goods in the height of the honey season are very expensive and exasperating, to say the least.—Ed.]

"Was it not our duty to work and pray a little harder for these men?" is a question A. I. Root asks, p. 1035. I suppose "harder for these men than for children" is meant. Evidently you base your judgment on your belief that the boy of ten is more likely to backslide than the man of forty, Bro. Root. I think a careful study will change your belief. I think the testimony of Spurgeon and others is to the effect that there is less falling away among children than among adults. Suppose, however, that the boy is twice as likely to fail as the man. If he is twice as easily won, then the account balances. I confess, however, that there's a good deal in your argument that getting the strong men will help get the children. But these things are hardly settled by the ordinary rules of arithmetic. We ought to work with all our might for the child, and we can hardly work harder for the man. And surely we ought to do our utmost for the man, seeing his chance is constantly becoming less; and I'm not going to quarrel with you about which you should work harder for so long as you're using all your powers to work for either.

BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS

THE GREAT SOUTHWEST, KNOWN AS THE BEST BEE-KEEPING, STOCK-RAISING, FRUIT AND TRUCK GROWING, AND GENERAL FARMING SECTION OF TEXAS.

Farming began in Southwest Texas with corn and other forage crops for home use. An abundance of corn for the use of the country could be raised with little effort. It averages about twenty bushels to the acre for a term of years, yielding larger crops where the land is better adapted to its production. Mexican June corn is much planted, and often yields two crops in a season. Sorghum, a kind of smaller sugar-cane, from which sorghum molasses or syrup is made, is, however, the great standby of the stock man and farmer as a forage crop. Mainly it is sown broadcast, mowed and stacked for feeding, or it is baled as ordinary hay. A few of the most progressive and prosperous stock-farmers cultivate it in drills or rows, and then mow it and stack it by horse-power stacking-machines into immense ricks or silos, from which it is fed to cattle as ensilage. The sorghum hay and ensilage fed with crushed corn, cotton-seed meal and hulls, and other feeds compounded into a well-balanced ration, have been mainly instrumental in giving this country its prominence as a producer of fine beef and fine cattle generally.

Other forage crops raised here successfully are millet, Hungarian grass, buffalo grass, Bermuda grass, cassava, Spanish peanuts, cow peas, alfalfa, clover, milo maize, Kaffir corn, pencillaria, rape, artichoke, stock beets, etc. Stock beets promise to become one of our leading feed crops for stock of all kinds, poultry, etc.

Cotton, for many years past, has been the main money crop; but King Cotton is gradually losing his dominion where diversification is getting in its work, and the farmer is learning the benefit from the new regime. The cotton-planter now plants more forage crops which he can feed to cattle, horses, mules, hogs, sheep, goats, and poultry, and sells these with an increased profit. He raises more truck, vegetables, fruit, and miscellaneous other paying crops. He keeps more beds. Broomcorn is raised to some extent, mostly by Northern farmers accustomed to growing it in the North. Here two crops are marketed, but only one in the North. The yield is larger, while the price of land and cost of production are cheaper, and prices better, owing to the large demand by local broom-factories. These brooms are sold in car lots in Houston, San Antonio, Brownsville, and other Texas cities, and are found in nearly all stores in this section of the State. Broomcorn production and the manufacturing of brooms bids fair to become one of our leading industries. There is an opening for development in many lines.

FRUIT AND TRUCK GROWING.

Nowhere does the soil yield better returns than it does in this country. In truck-growing it is excelled by no other portion of the United States. Vegetables grow here very easily; and, owing to the early seasons, for which this section is noted, they can be placed on the market from *one to six weeks earlier* than from any other section, and thus command very handsome prices. Truck-farmers have been making big money for several years, and the industry is rapidly growing. Land planted in truck, and well tilled, yields from $100 to $500 an acre, according to the kind of truck grown. The writer has seen "onion-patches" that yielded returns of over $750 per acre. These "patches" consisted of several acres at that. The soil is practically inexhaustible, producing as well after twenty-five years of continuous cultivation and fertilizing as it does the first few years. The country now promises to become one of the leading agricultural sections, truck-farming being one of the leading industries.

Among the fruits and vegetables grown here successfully are strawberries, dewberries, blackberries, plums, peaches, apricots, figs, pears, oranges, lemons, bananas, pomegranates, grapes in many varieties, olives, Japan persimmons, and mulberries; cauliflower, cabbage, turnips, mustard, celery, wax-beans, peas, spinach, egg-plant, peanuts, parsley, salsify, lettuce, beets, tomatoes, cucumbers, butter-beans, Irish potatoes, watermelons, canteloups, squashes, pumpkins, kershaws, sweet potatoes, English peas, onions, garlic, leeks, shallots, roasting ears, varieties of peppers, and numerous other things.

IRRIGATION.

It is wonderful how the soil, which seems almost too poor to produce any thing but the scrubby erophytic growth generally found upon it in many places is transformed into the richest producing soil that the writer has seen. All that is necessary is to apply water to this soil and the results are astonishing. Irrigation is coming in Southwest Texas, and in the western part especially; and throughout the "artesian belt" many artesian wells are furnishing water for irrigating purposes. It is claimed by many well-posted people that there is water enough under any given tract of land in the coast country to irrigate it by means of a sufficient number of wells. Where artesian water can not be obtained, pumps operated by windmills or gasoline-engines, and steam-engines using fuel oil or wood, are used. The large rivers will irrigate large areas; but a greater area will be irrigated from wells, because it is cheaper and quicker, and has many advantages. The canal proposition is a good one for the large capitalist or corporation. Any practical farmer can buy a small tract of land, dig his own well, and raise water by windmill, steam or horse power, according to his ability. Irrigated crops mature quickly, and come in quick rotation, each crop or vegetable requiring irrigation equivalent to only a few good rains.

It is to be expected that, with more irrigation, and alfalfa, new locations will be opened for bee-keepers.

In another issue of Gleanings I will show the readers a larger map of this country, Southwest Texas. This map will show the counties, towns, railroads, and other things of interest to bee-keepers, especially those who are interested in this section of country. I shall try, also, to tell the readers something more about the different districts, and where the main bee-keeping centers are located.

Pickings from Our Neighbors' Fields
By "Stenog."

About two years ago I published a list of foreign bee-journals. As that list has changed so much since then, I have in view a new one, to meet the numerous requests of our readers who came from Europe. More bee journals are published now than ever.

* * *

So far as honey is concerned, Spain is probably the most unfortunate country in the world just now, and that statement might include nearly every thing eatable. A frightful drouth has been devastating that once favored land. In Andalusia, the southern part of the peninsula, some 85,000 people have starved to death, and a million more are starving, while famine stalks over a good deal of the rest of the country.

* * *

Russia seems to have the best future before it for honey of any country in Europe or Asia. In the southern half of Siberia, that vast land of camels and icebergs, oranges and frozen oceans, there are plains of flowers as unlimited, apparently, as the sea, and quite good honey-yielders, too, that are never trodden by human foot except in the roads through those vast fields. With the freedom for development we have here in America, Russia could put enough honey on the market to surprise the whole of us.

* * *

A recent number of *Centralblatt*, a German bee journal of wide circulation, informs its readers that foul brood has, to the horror of all bee-keepers, broken out in several apiaries in Hanover. A writer in a later issue, however, seems to think the situation is not so bad as represented; but it is bad enough to warrant the most stringent precaution against its spread. We shall soon see whether foul brood in Europe is any less fatal in its results than in this country.

* * *

The great number of conventions held by bee-keepers in Europe within the last year, especially among those speaking German and French, is surprising, and ought to set the pace for Americans. An account of the proceedings of these conventions occupies much of the space in foreign bee journals. Their attendance is probably ten times what it is in our own conventions; but that is largely due to the fact that so many of the members live in a comparatively small space, and hence can attend more easily. Besides, if a convention is to be held in Brussels, for instance, it is at a time when a large fair is held there, thus offering additional inducements to leave home.

* * *

I have watched the foreign bee-journals quite closely this summer and fall to note whether the crop has been good or indifferent in Europe. I am sorry to say that the reports have been of a decidedly "blasted hopes" variety, gleaning my information from at least a dozen different sources. While reading these reports I noted that some heath honey is so thick that it can not be extracted. I'd like to get about ten pounds of real Scotch heather honey. In speaking of good crops and large apiaries, however, the Europeans seem to know nothing of the jumbo affairs we have in this country, like those of E. W. Alexander, W. L. Coggshall, M. H. Mendleson, and a score more I could mention, whose crops are measured by the ton. In speaking of these large crops the foreign bee journals often describe them in terms of the greatest amazement.

* * *

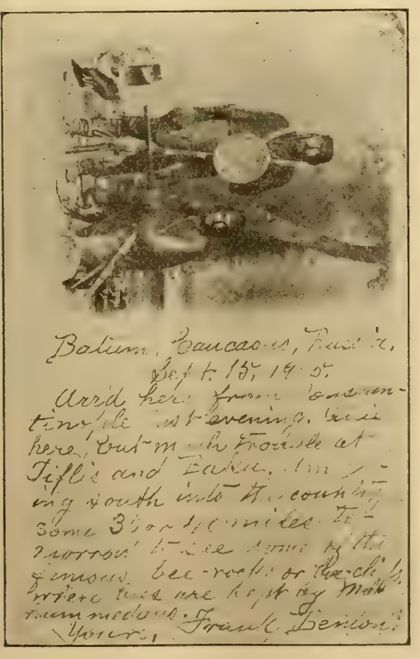
The Fourth Annual Report of the Illinois State Bee-keepers' Association has been published, compiled by Jas. A. Stone, Sec. I think it is the most complete report of the kind I have ever seen, containing as it does 192 pages. It almost seems useless to attend conventions when such complete knowledge of their proceedings can be obtained and read at one's leisure. But how much will there be to read if everybody stays at home? Many things aside from what is said about bees make it a paying investment for the bee-keeper to attend these meetings. The book in question is a verbatim report of all that was said and done at this convention. It was printed at the office of the *American Bee Journal*, and I rather suspect that Mr. York's careful sub-editing of the manuscript has had much to do with the excellent literary style of it, causing it to present a decided contrast with similar reports I have seen in some cases. Whether one lives in Illinois or not, it will, if he is a bee-keeper, pay him to get and read this book. Address G. W. York, 334 Dearborn St., Chicago, for particulars.

Editorial
By E. R. Root

OUR readers are referred to a very valuable article by W. K. Morrison, in this issue, on the subject of a big bee show at either New York or Chicago.

MR. BENTON AFTER THE CAUCASIAN BEES IN THEIR NATIVE HEATH.

SOME little time ago I received a letter from Dr. E. F. Phillips, acting in charge of the Bureau of Apiculture, at Washington, expressing his fears that, owing to the troubles in the Caucasus regions, in Russia, where these celebrated bees are found, it would be impossible for Mr. Benton to get them in person this year. But the latter has been sending us from time to time souvenir postals from points along the line of his travels. We have already reproduced one, and now take pleasure in presenting a half-tone reproduction of another, right direct from the Caucasus. It is self-explanatory.


Batum, Caucasus, Russia,
Sept. 15, 1905.
Arr'd here from Constantinople last evening. All quiet here, but much trouble at Tiflis and Baku. Am going south into the country some 30 or 40 miles to-morrow to see some of the famous bee-rocks or bee-cliffs where bees are kept by Mohammedans.
Yours, Frank Benton.

We shall hope that Mr. Benton will be able to send back to the United States a good lot of queens where he can pick them out right on the spot.

SELLING HONEY AT COUNTY FAIRS AND ELSEWHERE; THE GREAT STIMULUS OF LIVE-BEE DEMONSTRATIONS IN MAKING SALES.

ON page 952 of our issue for Sept. 15 I described how we had increased our honey sales at our county fair by putting a man in a large wire-cloth cage with a big colony of bees which he manipulated in all sorts of fantastic fashions. He would pick them up before the wondering crowds by the handfuls, and display them with bare hands and arms to the people. It will be remembered our sales here at the Medina grounds were, by reason of this exhibition, nearly doubled. At the Akron fair — a fair that approaches the general proportions of a big State fair — we put up a honey-booth, showing honey in its three styles — liquid, granulated, and in the comb. In a conspicuous place on the sales counter was a large observatory hive showing the bees on the combs and in the sections. Of course, the people were invited to see the "bees make honey." Then we had in the foreground, right where the crowds were going back and forth, our large wire-cloth cage in which we had one of our bee-men making demonstrations, opening and closing hives, pulling out the combs, hunting for the queen, etc. The bees were shaken into a box, and scooped up by the handfuls where the crowds could see them.

AN OFFICIOUS OFFICIAL.

But we had hard work in the first place to convince the proper official, who had charge of the exhibits, that our live-bee demonstration was really an attraction. He was not going to give us the space — not even to sell honey. He was a horseman, and seemed more interested in horse-racing than any thing else. Even when we showed him a letter from the secretary of our Medina Co. Agricultural Society, explaining that our live-bee exhibition was one of the most attractive features of our fair, he seemed disposed to poke us off into an obscure corner. But Mr. Warren, who has charge of our honey department, was not to be waved aside in that way. He finally secured space between an ice-cream stand and a booth where light lunches were served. That was just what we wanted. But our big wire-cloth cage had to be put in the background behind the honey-sales stand. What was the result? The sales for that day were very light. I made a special trip to Akron to see how the boys were coming on. I found them considerably discouraged. If they could only get that wire-cloth cage out in front where the crowds were they would have some show of selling honey. Mr. Warren urged me to go with him to see our officious official, and make another last attempt.

To this I finally assented. We started over, and met our man, but found him still indifferent. We at length got him to say that he would come down in the morning and look the thing over; but he did not want any "attraction" that would draw off from the horse-races. We went back to our stand. In the meantime we "got busy." We hunted up some of the other officials, explained what we had, and how we were handicapped. We said we would guarantee one of the most interesting attractions on the grounds. We would have a man inside of the cage, with bare hands and bare head, with bees all over him, and he would pick them up by the handfuls and pat them on the back. "That will be a great sight," they said, and they promised to use every "influence" to help us out.

SALES DOUBLE.

Well, to make a long story short, our demands were granted the next day. We caged our man with the live bees, and then he began his "stunts." We almost blocked the busy stream of people. They fairly jammed around the honey exhibit. Our man in the cage would tell a little story about bees, whet the appetites of the people, then point to the exhibit of honey just opposite. What was the result? The sales were more than doubled on the second day, and continued good right along through the other days. When the crowds got light, one of the boys would step into the cage, scoop the bees up, and hold them in his bare hands, to the utter amazement of the crowds that surged about. We took occasion to refute the comb-honey lies, and then asked the people to step over and take a free taste of our honey. Everybody was allowed to sample. Some of the time it took four men to wait on the people anxious to get the honey. On the second day we cleaned up all we had of the brick honey, and had to telephone to Medina to have a lot more sent over by the next express. But this was not all. We met people from all over the State who gave evidence of their surprise and pleasure at learning the true facts about the honey business. Many would ask where they could get more of that honey after the fair was over. "Right at your regular grocery here in the city," we would answer, for we had already made sales at all the principal groceries.

We paid all expenses, and more too; told hundreds and I may say thousands the real facts about the honey business. What is more, we have started a trade for the future; for whoever bought at this fair will want more of the same brand of goods.

A LIVE-BEE DEMONSTRATION AT EVERY COUNTY FAIR IN THE UNITED STATES.

Now suppose, dear reader, that at every county fair in the United States an exhibition of this kind were made. Suppose you plan right now for your county fair. If you handle it right you pay all expenses and make a nice little profit besides. Perhaps you will not have to send your honey to the city market. Besides selling off a good portion of your crop you will have laid the foundation for a steady demand for it in the future. Consumers will call for your honey at the groceries, and then your grocers will come to you.

But this is not all. If at every county fair in the United States a demonstration of this kind were made, the comb-honey lie would receive a death-blow. We could sell five times as much honey as we sell now if consumers could only believe it is pure and not manufactured. Convince the dear people that John Jones' and Jim Brown's honey is all right, at least for their several localities, and their honey will sell as it never sold before.

Of course, dark honey and all ill-flavored goods must not be sold at fairs. Use only the very finest of your crop; and then, while you are about it, get a gilt-edged price.

WOODEN SPOONS AND A FREE TASTE OF GOOD HONEY.

And that reminds me there is nothing like letting people taste of your goods. How did we arrange it at the county fair? We had a large quantity of little wooden sticks $\frac{1}{16}$ thick, 3 to 4 inches long, and about $\frac{3}{4}$ inch wide. We would take a clean stick for every person who wanted a sample, dip it into the extracted or brick honey, and hand it over, and, say — you just ought to have watched the expressions of approval. Some would go away with a brick or a bottle of honey. Others would pronounce the stuff *so good* they would want a whole gallon of it, and a gallon they got.

SALES DEPENDENT ON ATTRACTING THE CROWDS.

The secret of making sales at fairs is, *to attract the crowds*, and a bee-keeper can do that to perfection. Why, dozens and dozens of people would tell us that the feat of taking up handfuls of real live bees with the bare hands and bare arms was more wonderful than to see a man go into a cage of lions and do great stunts with those brutes. One man said, "Compel me to go into a cage of lions or bees, and I'd take the lions." This illustrates the feeling of many. The public is simply amazed. Everybody talks about it. The result is, crowds will flock around the honey exhibit to see "that man stung to death." Of course, *everybody* does not buy, but he receives some valuable information that may lead to his being a customer for somebody's honey at some time in the future.

LIVE-BEE DEMONSTRATIONS AT BEE SHOWS.

Elsewhere in this issue Mr. W. K. Morrison recommends a big bee show at Chicago or New York, something on the line of poultry, automobile, and horse shows. Now, suppose there were a dozen big cages, and bees were handled inside of a big hall, where a crowd could go and come. Suppose a lecturer or two were engaged to talk to the crowds as they went by, pointing out the various demonstrations that were being made. Then suppose there were attractive exhibits, and good prizes for the best show of honey. Then suppose there were selling booths where honey in convenient packages could be obtained, and where prospective customers are allowed to sample the goods, with good clean wooden spoons. Well, don't you think in that case the honey business in that city would receive a wonderful stimulus?

FREE ADVERTISING.

The great metropolitan dailies would be all agog about it, and the comb-honey lie would go glimmering. I'll have some illustrations that will show the style of our bee cage, and the crowds that assembled to see "the man get stung."

CAUCASIANS—CONFLICTING TESTIMONY.

THE *American Bee-keeper* for October is inclined to regard the Caucasians "as the most worthless race of bees that has ever been offered to the American public;" and it would advise caution on the part of those who think of investing in them. Editor Hill may be right. Dr. D. E. Lyon, on the other hand, who has a colony of these bees, is very enthusiastic over them. He says he can jerk the hive open in cool weather, without smoke, and the bees will not resent it. He regards them as a valuable acquisition. The one or two colonies we have seem to be quite gentle; but the bees were too young at the time of my examination to form any thing like an accurate opinion of their temper. However, GLEANINGS believes they are worth testing, and looks with much favor on the effort of the general government to obtain them from the Caucasus, and import them into the United States. One serious objection to them I see is that those we have look so much like black bees (much more so than Carniolans) that it would be almost impossible to determine by their markings whether they were pure or not, especially if raised in a vicinity where black drones were present.

COMB FOUNDATION IN THE UNITED STATES NOT ADULTERATED.

A WRITER in the *American Bee-keeper* throws out the insinuation that comb foundation made in this country is adulterated. He says he "got ten pounds of thin super foundation from one of the largest firms that makes and handles bee-supplies. It was almost white, and even in the hottest weather it did not get soft. I think it contains a pretty large percentage of paraffine." The editor of the *American Bee-keeper* believes the charge to be "quite unfounded and exceedingly unjust." He does not hesitate to assert that the whole evidence is, in his opinion, "confined to the mind of the accuser." Quite right, Bro. Hill. Even if the manufacturers of comb foundation had no moral scruples (and I think they have), they are business men enough to know that about the quickest way to ruin their own business of foundation-making would be to adulterate their wax with paraffine and ceresine. All the manufacturers buy their wax from bee-keepers and others of known reputation—at least we do. They might inadvertently get a little adulterated; but every cake of wax that comes into our foundation-room is carefully inspected by an expert. Several times has he rejected suspicious samples. On one occasion he rejected a whole shipment. We compelled the seller to take it back right speedily or stand damages. He took it back.

The mere fact, as averred by the correspondent, that the foundation in question was white and hard only goes to show that it was pure beeswax and not paraffine, and had probably been made for some time, during which it bleached. Thin super that has been made for six months or a year, even of the purest wax, will be much whiter and somewhat harder than that just from the mill.

The accuser says the foundation-makers have never denied putting out such an article. When this matter came up some time ago it was denied most emphatically. For evidence of this, see page 644, June 15.

SPECIAL ISSUE GLEANINGS IN BEE CULTURE.

WE are pleased to announce to our subscribers that extensive plans are now under way for a magnificent Christmas (Dec. 15) issue of GLEANINGS. It is planned that this issue shall by far exceed in its wealth of contributed articles, its half-tone illustrations, and its cover design, any thing heretofore attempted in bee-keeping literature.

The cover is printed in three colors by one of the best color-printing establishments in the United States. We were not satisfied to attempt this ourselves, and have gone to great expense for the printing of this cover. The design is something unique, and very pleasing indeed. It shows the red clover in its natural colors in all its beauty, and, all together, will make a bee-keeper's magazine that will compare favorably with any of the literary magazines of to-day.

During the past summer we have had a special artist who has been sent to various points especially to take photographs for us. He has traveled on our account alone the past summer over 4000 miles, and we can promise something very fine in our half-tones for this issue. In this announcement we are unable to specify definitely the subjects that will be given, but those who are at all familiar with GLEANINGS for the past year will know that a treat in illustrations is in store for them. We can definitely announce now that some of the prize photographs in our second photographic contest, American and foreign, will appear in this issue. Our engravings are made by the very finest engravers in the United States, insuring first-class work in every respect.

MISS BESSIE DITTMER, daughter of Mr. and Mrs. Gus Dittmer, the foundation-maker, was married, Sept. 20, to Mr. Julius Hammer. Miss Dittmer is a young lady who created a very favorable impression at the Northwestern, in Chicago, last winter. Any man who could win her hand ought to be extremely happy.

GENERAL
CORRESPONDENCE.

HONEY PUBLICITY.

The Great Possible Value of the Honey-producers' League; Suggestions as to How this may be Accomplished; a Similar Case.

BY STEPHEN N. GREEN.

As a student of advertising, the problems that the Honey-producers' League have undertaken are to me very interesting. The first reading of the constitution, from an advertisers' standpoint, suggested some improvements, particularly in regard to a trade-mark. Unless the Executive Board has power to provide for a trade-mark the League is making a serious mistake the first year of its life; but I will speak of this matter later. Being only indirectly interested in the League, after first glancing over the prospectus the matter slipped my mind until reading an article on a similar project. The case of the honey-producer and the prune-grower was such a striking parallel that I became again interested, and have put some study on the subject. The article to which I refer is "Prune Publicity," by Homer C. Kratz, of California, in the August number of *Ad Sense.* I am quoting the article practically complete. The italics are mine to emphasize the points that I wish especially to enlarge upon.

> The San Joaquin Valley, and Fresno County in particular, produces nearly all the raisins used in the United States, and it is also a prolific producer of that much-abused article, "prunes."
>
> *Indirectly, the attempt of the funny man to have his joke at the expense of the prune has cost the growers of California and Oregon much money.*
>
> The joke about being "full of prunes" has been no joke to the growers. It has hurt the sale of their product, and will eventually cause them to spend many more dollars to remove the impression that the prune is a joke.
>
> We will agree that the prune is one of the most healthful and delightful fruits grown. There is hardly another more beneficial to the user. There is not another fruit with its keeping qualities and its cheapness to the consumer; yet with all these advantages the prune-grower does not make money. He never will until he begins using persistent, logical, and convincing advertising. He will have to spend many dollars that may apparently bring no return, yet all the time good is being done in educating the people up to the necessity of using prunes.
>
> There are many examples of the class of publicity before the prune-growers. *The Breakfast-food people have demonstrated clearly and conclusively that advertising will sell any thing.*
>
> I venture the assertion that I can take alfalfa—one of the staple crops of Fresno County, in California — burn it, bake it, grind it up into a breakfast food, advertise it by telling of its health-building properties, and sell it by the thousands of tons. A nice little story about its recently discovered nutritious qualities—its nerve-building, brain-restoring possibilities —and its wholesomeness will send the food-crank to the grocer for "Alferina" breakfast food just as quickly as he goes for H. O. buckwheat, or grape nuts that are not made from grapes.
>
> *The first step in prune publicity is co-operation.* No individual grower can succeed in making the public use more prunes. There must be an association of growers. There must be a fund for the dissemination of prune knowledge. There must be intelligent direction of the distribution of these funds. The story of the prunes must be told in an interesting way the pictures should show the orchards in all their beauty — the advertising should create a desire to eat prunes, and, after being eaten, should make the eater feel that his system is being built up.
>
> Glittering generalities won't sell prunes — the talk must be clear, concise, logical, brief, pithy. Let the medical man tell his story. First get the health facts from him, build on that structure, and you will build as the patent-medicine and the breakfast-food man does; you will see the dollars come rolling in faster than they go out.
>
> *We will all agree that any food product, to be properly advertised, must be known by a distinctive name, brand, or trade-mark.* Whether the prune is grown in Oregon or California, there must be a distinctive title that the buyer will recognize and want.
>
> *The advertising must appeal to women,* as they do the buying; and if they get interested, many a man will get prunes who never tasted them before.
>
> Prunes go upon the market in an unappetizing condition. They look hard, and, to the uninitiated, moldy. The man or woman who does not know how delicious they are will be sure to pass them by. Now, in addition to educating the public in the use of prunes, let us go a step further and give the public a package it will appreciate. Why not put a brand of prunes on the market all ready for use—already cooked put up in glass jars, so that the clear juice and the rich syrup may be seen. *The tempting fruit will make itself wanted at sight, and will bring a high price.* If the housewife could get her prunes already cooked, only needed warming, how much more would she use?
>
> We have before us the examples of the meat trusts in putting prepared food on the market. Ham, corned beef, chickens, turkeys, horse meat (and Oregon puts up some of the latter), all go to the consumer ready to use, and the result is seen in the millions of dollars sold annually. I think canned dog might be put on the market under another name, and, with persistent advertising, pass for a health food.
>
> Prune-growers should profit by the experience of those who have grown rich giving the public the things they will buy. *Establish your brands and your trade-marks;* ship none but good fruit; put up prunes in an appetizing way, and tell the people your story every day. Tell it to the women; the hand that rocks the cradle can fill the prune-grower's pocket if it chooses. Woo woman into using prunes, through the press; make her understand the value of prunes, and, as I have written before, many a man will be "full of prunes" before he knows it.

THE ATTEMPT OF THE FUNNY MAN TO HAVE HIS JOKE.

The bee-keeper may gather one grain of comfort, that he alone has not been the only target for the arrows of the "funny" man. That little joke of Mr. Wiley's, that he did not label, is not the only one that has made the innocent suffer. Now, right here is where the League is doing a work that alone justifies its being. When one comb-honey lie appears it should get a retraction, and publish ten good articles to make up for the one bad one. Not only use the pound of cure, but remember the ounce of prevention. That statement to go into shipping-cases should be well taken care of by every manufacturer or producer. This kind of "free" publicity costs but little, and is *very* effective. Use it to the limit. Get the newspapers everywhere to publish interesting truthful stories about bees and honey, and you get the people to talking—just the best kind of advertising.

ADVERTISING WILL SELL ANY THING.

Yes, if you can sell sawdust for breakfast food *why* can't you sell honey by the mere force of advertising? Honey presents magnificent opportunities for *good* advertising. Why, the great advertisers themselves use honey as a standard for comparison. Does not "Nabisco" remind you of honey? and, too, the National Biscuit people recommend its use with their Uneeda biscuit. The Rubifoam people tell you their dentifrice is "as sweet as honey;" and how the Karo-syrup people did disgrace the fair name of honey to elevate their glucose mixture! for who will forget "better than honey for less money"? By the way, what has become of "Karo"? Let me say right here that even advertising can not fool all the people all the time; but I will take up the matter of merit as the foundation of advertising success later.

ADVERTISE HONEY — NOTHING EASIER.

What news the chemist can tell you! and the doctor! and don't the children cry for it? Is there any thing more delightful to the taste than good honey? How many products come in such a variety of forms, and can be put to so many uses?

THE FIRST STEP IN PRUNE PUBLICITY IS CO-OPERATION.

Naturally the first step in honey publicity *must* be co-operation. The Honey-producers' League is the *way;* but the bee-keeper must furnish the *means.* Join the League. Don't put it off. Don't wait for the other fellow to do it, and you expect to get the benefit. Make this a personal matter. If *you* don't get into line the League can not be the greatest possible power. If bee-keepers don't co-operate, the honey market will not pick itself up. If you don't co-operate you will always get low prices, your product will be slandered, your interests will be trampled on. *Get together—co-operate.*

MUST BE KNOWN BY A DISTINCTIVE NAME, BRAND, OR TRADE-MARK.

Right here is the only fault I have to find with the League. I read the constitution once, then again. What! no provision for a trade-mark? Have the founders forgotten a fundamental principle in advertising? Well, they will some day see their mistake, and it is easy to remedy, as the powers of the Executive Board are broad. Am I not right about this? For instance, can you name (?) an article successfully advertised that has not a distinctive name, brand, or trade-mark, or uses an apt catch-phrase? Aside from the absolute necessity of an article having a trade-mark, there is another side to the matter. When the League overlooked a trade-mark it also overlooked a quality in human nature, and bee-keepers *are* human. Nearly every one expects *direct* returns from his money. Not many of us can afford to invest our hard-earned coin in philanthropic enterprises; we must get some in return. As the League now stands, it offers its members little direct returns. Now, a trade-mark on a member's product would raise the market value of it, providing, of course, the trade-mark be properly advertised. When a bee-keeper sees that he gets two dollars for the one he invests, the League will not have to work for subscribers. Oh, no! they will simply rush for admittance. Advertising a trade-mark will produce *direct* returns for the League's members, without a trade-mark (understand by this some distinct brand of some kind). Your advertising is sure to reach an end, for such advertising feeds itself little, so has no means of growth. If the League does not give its members some benefits over and above what the outside gets they will be very slow to subscribe, and extremely hard to get.

APPEAL TO THE WOMEN.

I do not know what plans the League has for advertising its product; but it surely can not fail to see the need of placing the bulk of its advertising before the women. It's the women that set the table, and it's the women that buy, so it's the women that the League *must* reach. Woo the women! Tell her your story, Mr. Honeyman, and you will not complain of slow markets.

WANTED AT SIGHT, AND WILL BRING HIGH PRICES; QUALITY AND ATTRACTIVENESS, THE TWIN SISTERS OF SUCCESS.

Honey *has* the quality. But don't let honey without quality get on the market if you can help it. Don't make the fatal error of letting the League's trade-mark cover a poor product. Make *sure* of this matter in *some* way. What is more disgusting than unripe extracted honey? It will spoil ten sales where one is made. Make it a very serious offense in the League to market such honey. Show the outsider where he is penny wise and pound foolish in doing this. Give good weight. If the section doesn't weigh a pound, do not allow this impression to be carried. When a section doesn't weigh the full pound, honestly say so, and charge less for it.

Honey *is* attractive, and attractiveness is a great selling force. Market the best grades only, and see to it that grading is done right. Don't, *don't* allow your trade-mark to market an inferior article. Strictly grade your comb honey; and bottle and neatly label the extracted; carefully sack the candied. Expect and ask a good price for your product, and you will get it, and have no trouble in doing so.

ESTABLISH YOUR BRANDS AND YOUR TRADE-MARKS.

To sum up, spend your money in judicious advertising in magazines, newspapers, etc. Get all the free advertising possible, you using your influence at home and abroad. Talk honey yourself, and be enthusiastic over it. Get a trade-mark, and make it stand for something. Then the Honey-producers' League will be on the road to success, and be a powerful factor in the honey markets.

The problem is a complex one, and I have not by any means touched all the points. It will not be completed in a day. Mistakes will be made. But don't make the greatest mistake — not doing *any* thing. There is abundant material in beedom — brains and product — to make the League a great success. Don't wrangle among yourselves. Forget your *little* differences in the *great* cause. Make your motto, "Co-operate and advertise." You may then rightly expect a bright future for honey.

Medina, Ohio.

MOLD.

How it Grows; is it Detrimental to Bees?

BY F. G. SMITH.

Knowing that many bee-keepers regard the bees as able to clean up moldy combs and make them as good as new, I wish to give the result of my observations, and my reasons for regarding it as an unsafe practice to follow.

First, let us consider the nature of mold. It is not a chemical product that can be produced at will by bringing about the right conditions, but it is a living organism, and, like all forms of life, is the product of preexisting life. It also produces, as do all other forms of life, more of the same kind; and, under favorable circumstances, the increase is very rapid: under others there is no reproduction at all. The vital germs of reproduction are not contained, as in the case of the higher plant growths, in a true seed, but are in the form of spores; and these spores are very minute, and have the power of remaining dormant for a time, to spring into life at the first favorable chance, and increase with a rapidity unknown in the higher forms of life.

Thus it follows that, for mold to exist, there must be both the spores present and favorable conditions for their development; and the more spores and the more favorable the conditions, the more mold we shall have, and the more spores to produce mold. Safety, therefore, lies in keeping the mold out of our hives and not letting it get a start at all. If we fail in this the next best thing is to destroy every trace of it. Can the bees be trusted to do this? I think not—not but that they may in a good many cases do so, either by carrying it away or making it too dry in the hive for it to grow. But the fact that it does grow in the hive with bees shows that the spores often escape destruction by them. The covering of the germs with honey or comb does not kill them, for they will go through a comb and so spread on both sides of it at once from a common center.

Then it naturally follows that, the more mold there is in the hive, the more likely it is to get the start of the bees during a cold damp spell, and the more time they will have to spend over it when they might otherwise be at work gathering honey or rearing brood; and my experience satisfies me that, when one uses moldy combs, he is much more apt to be troubled with mold again. Of course, we can not always keep mold out of our hives any more than we can keep weeds out of our farms; but the more weeds we let go to seed on our farms, the more trouble we shall have with weeds in the future; and it is reasonable to suppose it is the same with mold.

This year I had some hay that got wet after it was bunched up, and in the bottom of the bunches were some moldy spots. When I drew it, some of these spots were so small that I paid no attention to them. One load was quite damp, and I let it stand on the wagon several days. When I did unload it, some of those little spots had spread nearly across the load, and had ruined nearly half of my hay; yet there were places in the load where there were no moldy spots put in, and no mold appeared there, though the conditions were just as favorable for its growth as where it was, because there were no spores present, and so they could not grow.

It taught me a lesson, and I said that, hereafter, I would not draw in any more spots of moldy hay if I knew it; and I would burn moldy combs and disinfect with a strong germ-killer every hive that became moldy. Then I would open them to the sun and air for a time, and then kill any scent of the germicide with the scent of anise or something else that the bees like, before using. Perhaps a good sun bath might be sufficient for the bare hive and the frames if the sun were hot, as sunshine is a great germ-destroyer; but I would not risk it under unfavorable circumstances.

Blanchard, Mich.

[What you say about mold in general is correct; but it is seldom, I think, that it does any damage in the hive. Nearly every spring there will be a sort of blue coating or mold on some of the combs in the hives; but I could never discover that they were in any manner detrimental to the bees. There is another mold that we find on a mass of dead bees that means no good to the live ones. There is still another mold that is found on combs affected with pickled brood. Such combs should be melted up, not necessarily to get rid of the mold, but of the disease itself.—Ed.]

MOVING BEES TO OUTYARDS WITHOUT CLOSING THE ENTRANCES.

The Plan a Success, but some Precautions Need to be Observed.

BY E. F. ATWATER.

Mr. Root:—You ask for the experience of those who have moved bees without shutting them in the hives. I first heard of this method through Rambler's article telling how Mr. Stearns, of Selma, Cal., moved his bees. Then a year or two ago friend A. T. Pennington, of Arcadia, Oregon, told me of moving bees in that way.

This spring, having several yards to move, we put the method into practical use, always on a spring wagon. Our method is to subdue the bees by smoking and drumming, then we load them on the wagon. Even on a hot summer day it is rare for a bee to take wing after the wagon is started. Our experience is with Italians and Carniolan-Italian crosses.

The crop here has been a failure; so in August we decided to locate a yard of 100 colonies in a good range about 36 miles from home, where prospects were better. For this long trip we stapled lids and floors to the hives. The first load of 27 hives was started on a cool morning when bees did not fly. This load was on a spring wagon, and went right through to its destination without any trouble. This same cool morning we prepared two more loads, using "dead-ax" wagons with hay-racks and a few inches of hay. The first load started nicely, but the incessant jar and rattle soon aroused the bees, and from our position on the next load we saw that the bees were annoying the horses. We went perhaps half a mile with our load, but the bees were so fearfully shaken up that they showed a disposition to attack the horses, especially as a horse shakes its ears so frantically when a bee is near. Finally our team stopped, and, when released, we had something of a tussle and scrimmage before we got them away. Just as we got our team safely away I saw that Mr. Rinard, driver of the other team, was having trouble. His team had stopped, and was rearing and plunging. My assistant helped him to unhook, but his horses broke away and ran perhaps a mile before he caught them. We had both sets of harness repaired; and that night, as soon as the bees were all in the hives, we started again.

My load made the trip successfully; but a cloud of smoke was allowed to drift back over the load. At every chuck-hole, culvert, or stone, a few bees would take wing, but the horses were not stung.

After Mr. Rinard had gone about six miles one of the tires came off and the bees were set off to remain until the next week, when we moved them with entire success on our spring wagon.

Now, when you go to move bees in this way see that they are, first, *subdued;* then load on a *spring* wagon, always. Use a smoker to subdue any rebellious colonies while loading. Cover tops and half way down the sides of hives with a large wagon-sheet, so that smoke blown under will reach all the hives. Drive carefully, though you can allow the team to trot where the road is good.

Next summer I shall have heavy muslin covers for the horses, with head completely protected, and so avoid any likelihood of accident whenever the horses need be near the bees.

In closing, if any one tries this method and loses a valuable team, or has a bad accident, don't blame me, as I am not recommending this method; but in this way all our bees will be moved when moving is necessary. The colonies come through with vitality unimpaired, and ready for a honey-flow, without the disappointing dwindling that many have noticed when moved by the old methods.

Boise, Idaho.

[We have had enough reports now relative to moving without closing the entrances so that we may say the plan is a success when carried out properly.

But I do not quite understand why a spring wagon would be better than one without springs. After bees have been subdued with smoke, and been bumped and jarred, and this bumping and jarring are kept up, they act demoralized, and are not inclined to sting—at least that has been my observation and experience. The spring wagon would serve, it would seem to me, to let the bees get back into a quiet state, then when there would be a sudden jolt they might rush out and offer an attack. I can only suggest that the reason why the moving in the one case resulted in trouble was not because of a lack of springs, but because, possibly, some particular colony, ordinarily easily irritated, had not been fully subdued in the first place with smoke. I may be all wrong, but I should be glad to have some of our subscribers, who have had experience, correct me if so. I expect to have one of our outyards brought in without closing the entrances; but, mind you, we will have the king-bolt so that it can be easily withdrawn, thus releasing the team in case of trouble. —ED.]

IS THE ONE-POUND SECTION A MISTAKE?

BY T. K. MASSIE, STATE APIARIST.

On page 813, under the above caption, Dr. Bohrer indorses Virgil Weaver's condemnation of the "so-called" one-pound packages. L. V. Rickets and others in the *American Bee Journal* have expressed similar views. I think these gentlemen all make a mistake when they condemn the section as such. The public has been taught by bee-keepers, supply-manufacturers and dealers, and the bee-journals, to look upon the section as a one-pound package, and this, too, without regard to their size or shape. Honey produced in the "Standard separatored sections will not average a full pound, and consumers are fast finding this out. Then they reason like this: "Bee-keepers are cheating us in quantity — this we know; and if they will cheat us in quantity they would cheat us in quality also, and sell us sugar syrup or glucose, and call it honey."

I sell all my own honey direct to consumers (none of it is ever shipped to the congested markets), and I know, therefore, whereof I speak. I have frequently met with that kind of argument. There is no use in doubting the fact that the light-weight section is largely responsible for the great falling-off in sales of comb honey; and when Messrs. Weaver, Rickets, Dr. Bohrer, and others condemn the fraudulent part of the sections — the light weights — they have my hearty "Amen."

Nearly three years ago I published my book, and on pages 53 and 54 "sounded the alarm" on the light-weight sections. I mailed a copy to almost all the principal writers for the bee journals and to all the journals, but no attention was paid to it. "Too radical," I suppose. It seems that a few are now waking up and see the folly of shutting our eyes against facts. Had all bee-keepers exhibited the right spirit (worked on the "square-deal principle) toward the consumers, the organization of a "Honey-producers' League" to push the sales of honey would never have been necessary. I sell all my honey direct to the consumers — my home customers — and could sell thousands of pounds more if I could get "honest goods." My sections are 4¼×5×1⅜, plain. This size will, when well filled out, average a shade over a pound. I am changing all my supers for the 4×5 sections into chunk-honey supers by simply nailing a top-bar between the end-pieces of the section-holders. The 4×5 plain section will not hold a full pound of honey. All unfinished and light-weight sections are put with the chunk honey. The honey is cut out, packed loosely into tin cans (the friction-cover cans are excellent for this purpose), then thoroughly ripened extracted honey, which has been carefully strained, is poured over it till all the spaces are filled, and the comb literally floats in the liquid honey. This sells readily as comb honey at 18 cents per pound. It is not necessary to mention all the advantages of this plan. Wideawake bee-keepers will see the point. It gives us satisfied customers who always "come again" for more of that extra-fine honey, the "best" they ever used; solves, to a great extent, the question of disposing of extracted honey, and it educates the people to know that liquid (extracted) honey is more palatable — is better every way — than comb honey, the beeswax in which is absolutely indigestible.

I notice what our friend A. I. R. says in his footnote. I see that *he* doesn't complete the third line till he calls the section a "*one-pound* section." I agree with the remainder of his footnote. The facts stated are correct, and the sentiments expressed are proper and right. I notice, also, what Dr. B. says in regard to the laxity of our pure-food laws, so called. The doctor, and others who have expressed similar views, seem to forget that commercialism is at the bottom of all our trouble on this point.

Tophet, W. Va.

THE TOWNSEND METHOD OF PRODUCING COMB AND EXTRACTED HONEY..

BY EARL SAFFORD.

I noticed Mr. E. D. Townsend's article in your issue for June 1, and would say that I have been using practically the same arrangement of super as he describes, for the last three or four years, with good results. I use the ten-frame Langstroth hive and Ideal super, putting one or (preferably) two shallow frames of comb on each side, and four or five rows of sections, 20 or 25 through the center, and find it to be the best plan I have been able to discover whereby swarming can be practically controlled and bees kept hustling in the supers. When I first commenced using this arrangement I made frames on the closed-end-frame style by cutting up the bottom slat for end-bar, and making the top and bottom bars ⅜ and ¼ thick, and just long enough so one frame would occupy the same space as one row of sections; then when the bees got to working well in sections I sometimes took out the frames and put sections in their place. But this made considerable work; and as I have as good sale for extracted as for comb honey I now prefer the regular shallow frame.

Spaces for the frames are easily made by driving two small nails or staples at proper distances from the side in each end of the super, and setting the first fence separator against them instead of the side of the super. Some might object to using two sizes of frames; but for me in this locality I think it a great advantage to do so. With me the shallow frame for brood-nest has not been satisfactory; but for putting on top of the Langstroth-frame hives at first in spring they are just the thing to catch the first honey and keep the bees from crowding the queen.

Salem, N. Y., July 7, 1905.

TROPICAL BEE-KEEPING.

A Reply to W. K. Morrison's Article, P. 655; the Color and Quality of Tropical Honey.

BY LESLIE BURR.

Allow me to make a few remarks on that article by W. K. Morrison, on the principles of tropical bee-keeping. It is true that much of the tropical honey is dark and inferior. Something over two years ago I was at the office of the National Biscuit Co., Chicago, and was there shown samples of honey from a number of the tropical countries. There was not a sample in the lot that a Northern honey-buyer would call first class.

The reason for this is that the honey was stored in brood-combs. I know it is true that old brood-combs will darken the honey; but I also know it is true that a smaller per cent of Cuban honey is produced in old combs than that of the North. For instance, the honey produced from the "cajas creolla" by the native Cuban is, as Mr. Morrison says it should be, produced as it is cut from the hive, combs and all. But I should like to have some one prove that this honey ranks any better than that produced by American methods.

The bellflower and a very few other plants produce beautiful white honey. The wax produced when the bees are working on the bellflower is as white as tallow; but later, when the bees are working on mango and romerilla bloom, not only is the honey dark when gathered, but the comb built at that time is yellow. I have seen combs built on the south coast that were a bright-red color (as was the honey that was being gathered at that time. As to queen-excluders, when the extra-fine honey of Cuba is being gathered (from the bellflower) there is no need of an excluder to keep the queen from laying in the supers. The trouble is, to get any brood at all. I have gone through colony after colony, and found only three or four frames to the hive that had eggs in them.

When a colony that is not extra strong has on an excluder, what does it do under those conditions? What happened two years ago was that they blocked up the holes in the excluder and did not worry about going into the super.

As to his next point, cutting out all of the combs and having them built new, ye bee-keepers of Cuba, cut out all of your super combs just as the white bellflower is at its height (and the nights so cold that the bees can not make comb honey in sections). Just think of all the honey and wax you would get, and such nice honey too!

Again, as to cutting out the combs and hanging them up in muslin bags, I have uncapped between 9 o'clock and 4:30 enough combs to make 300 gallons of honey. Now, how many muslin bags, and tanks to catch the drip, not counting the room you would need to work in, or the time spent in waiting for the honey to drain, would be needed by this method? Say a muslin sack would hold 50 pounds of the mashed combs. There would be needed to handle 300 gallons just about 80 muslin bags. Then what would be the cost of making tanks to catch the drip? Yes, Mr. Morrison, I think it would be best to go clear back to the first principles, and produce your honey, "la Cubana con los cajas creolla."

Now for the last statement. Bee-escapes pave the way for easier labors. Perhaps it would be a good thing to ask that practical bee-keeper, W. L. Coggshall, if he had three or four hundred gallons to take off a day would he use bee-escapes?

Casanovia, Cuba, June 26.

FOUL BROOD IN APIARIES RUN FOR EXTRACTED HONEY.

The Use of Queen-excluding Zinc Helps to Keep Down the Disease.

BY ELMER TODD.

[In order that the reader may fully understand the article which follows, which is a rejoiner to Mr. J. A. Green, it is, perhaps, well to state that Elmer Todd, on page 140 of the *Bee-keepers' Review* for May, stated that, in his opinion, it was perfectly safe to extract from the upper story of a colony containing only a few cells of foul brood, providing a perforated zinc separated the upper story from the lower; but he emphasized the importance of using no combs from the lower story of diseased or dead colonies, or such as may contain the dried-down scales of the dead matter. Mr. J. A. Green, in this journal, on page 807, stated that, while it was doubtless true that a large proportion of the honey in the upper story of a diseased colony was not infected, he did not think it would be safe to depend on any of it being incapable of conveying disease. He then quoted Doolittle as saying that a good deal of honey in store combs had first been put in brood-combs below and carried above; and then added that he was sorry to see such things published, because most people were too ready to take chances. Mr. Todd's reply is as follows:]

I note what J. A. Green has to say, page 807, on my foul-brood article in the *Bee-keepers' Review*. After reading his comments I see that he conveys a rather wrong impression, and probably does not understand some of the points of the article.

That article is based on actual practice and experience, without any fine-spun theories that will not admit of proof.

I would respectfully request him to read it once more, also the editorial that induced me to write it, and then give it the easy proof (if he has the material at hand) as indicated in that article before condemning it as impracticable.

The use of queen-excluding zinc may not be safe in theory; but it is in practice with a colony that is but slightly diseased, as I said in that article. I made no claims in the article referred to, only that, by using a queen-excluding zinc, foul brood could be controlled in a locality where foul brood is rampant as easily while producing extracted as if the apiary were managed for comb honey. This point Mr. Green seems to have entirely overlooked.

In extracting from combs containing brood taken from a diseased colony, the force necessary to throw out the honey is also sufficient to throw out the ropy contents of diseased cells. My experience is that, in the majority of cases, where the disease was contracted in the spring by a populous colony, the disease will exist in this stage for a comparatively long period, sometimes during the whole summer, by the bees not allowing it to remain long enough in a cell till it has had time to dry down to a scale. The baskets and wire netting of the extractor become daubed with this ropy contents of diseased cells, so it is not necessary to place a comb containing diseased brood into a clean colony to infect it. The extractor will tend to that; and it is an admirable vehicle to convey the disease through an extracting apiary after the disease once gets a start, and it can be depended upon to do the business quickly and thoroughly if combs containing brood are extracted from.

Now, a queen-excluder positively eliminates all that danger, and is absolutely certain to lessen greatly, if it does not entirely do away with, all danger — enough so that the disease can be controlled as easily while producing extracted as if the apiary were run for comb honey. It most certainly removes the certainty of a direct contamination by daubing every comb that may pass through the extractor, with more or less of the contents from diseased cells; and the excluder leaves only this indirect chance of contamination to be reckoned with, of the bees first storing the honey in diseased cells in the brood-nest, and, later on, transferring it to the supers. But a few careful experiments along this line will show that danger, in the case of a slightly diseased colony, is not so great in practice as it is in theory.

It would appear to me that, where there is foul brood in the locality of an extracting apiary, the need of the excluder would increase in proportion as the bee-keeper was incautious or lacked experience. In the case of such a bee-keeper, the excluder would be apt to confine the disease to the colony or colonies where it first appeared, until such a time as it would become well enough developed to show even a casual observer that there was something wrong. It is not an uncommon thing for foul brood to be present in a colony through the first season after inoculation, and show but a few diseased cells. Such colonies are dangerous ones if combs containing brood are extracted from.

York, Neb.

[I had decided I would not take any hand in this controversy, believing that our readers are perfectly capable of drawing their own conclusions after reading both sides; but I think we may all agree on this: To use queen-excluders in every extracting-yard where foul brood is to some extent, and to extract from no colony (either upper or lower story) where the disease is known to exist, even when there are only three or four diseased cells. Such a policy would eliminate to a great extent the chances of getting the trouble.—Ed.]

CREATING A MARKET FOR HONEY.

Some Pertinent Suggestions; Why Not Create a Bee-show, to be Held in New York or Chicago, or both? a Valuable Article.

BY W. K. MORRISON.

Of all the knotty questions that have arisen in the last few years to perplex bee-keepers, none is more important than this. Some of the bee-keeping fraternity who live far from the madding crowd in cities may not realize just how much the existence of the bee-keeping industry is threatened by what is known as the comb-honey lie and similar attacks; but I think we are justified in saying it would be only a question of time when the bee-keeper's occupation would cease to exist. Just consider the situation for a moment. There are fortunes in glucose-making if the people can be fooled into eating it; and any one knows there are no fortunes likely to be made in keeping bees; so there is a big stake up for the glucose people, and only a living for us. The industry of making jelly and jam has been rendered almost non-existent by the glucose mixtures, and the same can be done with bee-keeping. The comb-honey lie would cut a poor figure if it were not for the fact that the people are aware of the common use of glucose as an adulterant, and steer clear of it as far as possible.

For fear some one will think I am stretching the truth, let me add a word or two about other industries. Some time ago the dairy industry of the United States was threatened with dire disaster if the manufacture of oleo was not curbed in some way, and only drastic legislation by congress saved the day, but not before the United States lost a valuable trade with Europe in butter and cheese. It will be a long time before the United States regains that trade. Over in Canada, where no oleo is allowed to be made, they have a magnificent European trade in butter and cheese. Comment is superfluous. Quite a number of trades are weakened by the evil of adulteration or spurious imitation. Some of the finest old dyes have been pushed aside by the inferior aniline colors. Indigo, for example, has ceased to be profitable; so has vanilla culture been curtailed because artificial vanilla is cheaper. It does not make much difference if the cheaper stuff kills a few victims so long as it is cheaper; besides, the manufacture and sale of these inferior goods offers a far greater opportunity of making a fortune for some one. I can cite a familiar instance which shows very well what I mean. There are two kinds of butter-color sold in the United States, one made from an aniline source, the other from annatto, a fruit grown in tropical countries. Despite the fact that deaths have been traced to the use of this aniline color in butter, and that it is no cheaper than the other kind, it still continues on the market. Probably there is more money in selling the artificial kind. But what is more convincing still is the fact that the intelligent thinking people of all countries are now most studiously avoiding any thing and every thing that savors of adulteration. They fight shy of honey, and with good reason, for they see that it can readily be adulterated. They have been told, too, by the newspapers that comb honey is an artificial production, and they simply won't buy it. The fact is, they are afraid of being poisoned with a concoction of glucose and paraffine. Can you really blame them? It was recently stated by an authority that 600,000 people (mostly children) lost their lives annually by the use of deleterious food in civilized countries, so they have abundant reason for being afraid of spurious foods.

How shall we convince the public that the bee-keepers' profession is not built on fraud? Simply by showing the public our way of doing business. Some one has suggested advertising; but our enemies can do more of that than we can. I say, do not spend a single cent on advertising. The greatest frauds in the world do lots of advertising. The poultry industry can show us just what can be done. The great shows of poultry in New York and other large centers have had a splendid effect on the trade at large. People have been educated into knowing what good poultry is like, and otherwise taught what to call for when going to the poultry-stand in the market.

Some time ago the horse market was "slow;" but the horse-shows promoted in the large cities created a great desire in many people to own a really fine horse, and at the present time there are not enough really fine horses to go round.

This brings me round to the idea that at least one great bee-keepers' show will have to be organized in the large cities every year. It would take a considerable amount of hard cash to organize such a show, but the returns from admissions, etc., ought to reduce the actual loss to a small amount, possibly nothing. What we want is something thoroughly educative. We must show the public how comb honey is produced; and, furthermore, show that thousands of tons are produced annually, and, what is more to the point, that it is impossible to produce comb honey by machinery.

Organize a handsome show in New York or Chicago, and almost every daily paper in the country will have a notice of it that is far better than any amount of advertising. The principal feature of such a show ought to be bees and honey—not apparatus, though this should not be neglected. There should be honey by the ton of every kind—clover, raspberry, basswood, tupelo, palmetto, sage, alfalfa, catclaw, logwood, campanilla, in evidence at such a show. Honey should be on sale in large and small quantities, and every attempt made to make honey popular. A great deal can be done in interesting the city schools by allowing the children free entrance, etc. All this would entail a great deal of work; but other people do so, and so should we. The cost can be approximated by finding out the cost of the New York poultry show.

The bee-keepers' show ought to be a regular function of New York (and elsewhere) society every fall. I am firmly of the opinion we can put up as good a show as the hen-keepers, dog-owners, or horse-breeders; in fact, I believe that in beauty and scientific interest we can surpass all these people. By publishing the prize list about a year ahead, the bee-keepers would be in a position to "lick creation," or at least be able to make the city folks quite believe the bee-keepers are the sweetest men who live on Mother Earth.

[Our friend Mr. Morrison says he would not waste a cent on advertising; but in almost the same preath he proposes one of the biggest advertising schemes to popularize honey that has ever been proposed in these columns. He is to be excused, for his plan is one of the most sensible that has been proposed in many a day. Our great exhibitions, our county fairs, all advertise products of the factory and the farmer, and most effectively too. I do not remember that any one has before suggested the feasibility of holding a big *bee* show in New York or Chicago, such show to be conducted solely for the purpose of informing the general public about honey as a food.

I have recently attended a couple of fairs, have helped to make demonstrations of how bees are handled, honey taken from the combs, and I know something of what can be done by this kind of advertising, for advertising it is, of the very best kind.

If the National Bee-keepers' Association or the Honey-producers' League, or both, could arrange to get up a big show, rent some big hall, where the product of the industry could be elaborately shown, where hives of bees could be handled in inclosed bee-cages, so the general public could see the several processes of honey-production, I think we should see an awakening in our honey-market that we never saw before. Such a show ought to be held for a week, just the same as the great automobile shows, the dog shows, the horse shows, and poultry shows are held. Let there be representative bee-keepers present to make demonstrations; let honey be given in small samples for the public to taste, let there be big displays of honey. It will cost something, perhaps, but the result will be something magnificent. In an editorial in this issue I have something to say of the feasibilities along this line of advertising at a big county fair.—Ed.]

LARVÆ OF BEE-MOTH GOOD FISH-BAIT.

Propolis Valuable for Making Shellac Varnish.

BY ARTHUR GOLDSBOROUGH.

Page 809 you ask for information as to drone larvæ. The larva of any insect is the very choicest of fish-bait. I have spent many hours looking for it, when trout-fishing, in old rotten logs. I have used ordinary bee brood only once, preferring to get larvæ from hornets' nests, very plentiful here, and a larger bait. Of course, there would be no preference except in size and ease of obtaining. But there is a product of the hive which beats even the brood; i. e., the larvæ of the bee-moth. No insect among the caterpillar can equal this, because they are so tough that they can not be nibbled off, and one larva will catch several fish. Let Mr. Halter breed some for his patrons of the rod. You can't keep bee-larvæ long; but you may put the little moth-worms in a box containing some old comb and web, and wait till they are large enough for fish-bait. Bees often pull out the moth larva and their own brood, and drop it at a distance from their homes. Forest streams would naturally catch some of it, and thus we find here a natural fish food. Some fish that rise to a fly are very fickle as to diet; but if you do not get a "bite" with larva bait, then rest assured that the fish are not present.

USE FOR ANOTHER PRODUCT OF THE HIVE.

Others may be on to it; but as I have never seen any mention of propolis as a substitute for leaf shellac I give my way of making a shellac that is very useful around a place, and cheaper than any paint; besides, it is dry in five minutes. Save all the propolis that is gummed about the frames and sections. Throw it into boiling water. When the water cools, skim off the wax on the surface, because any mixture of it would soften your shellac varnish. Boil the propolis in fresh water to remove any honey, or it will be sticky. The propolis being found at the bottom, take it out. Make it into a ball or cake. In the winter time it will be brittle enough to mash into a powder. In the summer put it in a vessel containing cold water, and it can then be reduced to a powder, or granulated. In a gallon of wood alcohol put a handful or more, according to the consistency you need. The wax and sugar must be removed from the propolis. Other impurities will sink in your solution. As in the case with leaf shellac, put a little ground glass or coarse sand in the solution, and by shaking the bottle it will cut up the propolis and dissolve it quicker. Put on with a brush as many coats as you need. If you wish to make lacquer work on small things, especially metal, place the article, after shellacking thickly, in the stove oven, if it is not *too* hot, and it will give a fine luster. Propolis ground is a good counter-odor for a sick-room. Wrap it up into tapers with thin paper, or drop a few grains on a hot stove.

I color my shellac, when I need it, with any dry paint — yellow, blue, red, or white. All my rake and hoe handles are varnished red so as not to be lost in the grass. Hammer and hatchet handles are shellacked too. About half of my hives have a coat of it.

Washington, D. C.

A MODEL APIARY.

Honey Crop Materially Increased by Sowing Sweet Clover on Waste Lands.

BY JOHN BODENSCHATZ.

This apiary was started by me when fifteen years of age, with one colony, gradually increasing until I now have 250 in three apiaries. As will be noticed, I run for both extracted and comb honey. Having a large number of colonies from which to choose, those that cap whiter than others are run for comb honey, and those that do not cap as white are run for extracted.

Some years ago, when white clover failed to yield honey, bee-keeping was a total failure about this section. Finding that sweet clover blossoms right after white clover, and thinking that, if one failed, the other would certainly do something, I sowed several hundred pounds in vacant lots, along roads and quarry-holes where it thrived the best. I was highly repaid several years after, as my yield from sweet clover alone ran into the thousands of pounds, and it is holding its ground well, and spreading, crowding out all weeds.

The apiary shown in the illustration is situated nearly in the center of this village of 3500 population. The house shown is the honey-house. You will notice that there are two hives on the chimneys. These and others I use as decoys, and catch large numbers of swarms every year with them.

All our queens are clipped, as it is a much smoother way of hiving swarms, and you can laugh at some that want to abscond, which happens once or twice with me.

Several years ago this apiary was reduced to about 20 colonies by foul brood; but I have it now in fine and healthy condition. I had only one colony that showed the disease this year, and that was promptly dealt with by removing all combs and honey, and letting them start anew. I find that this is the safest way to deal with them.

Our honey crop this year amounts to about 12,000 lbs., about half extracted and half comb.

We winter on the summer stands, using winter cases for protection, and find this the best of any method I have ever tried for this location.

All bees are now handled by my brother, as I am engaged in the drug business; but it seems that I can't keep away from them, as they were the principal means for me to start a store of my own.

Lemont, Ill.

[Your bee-yard of stacked-up hives is suggestive of large yields of honey; and if these yields are due to the sowing of sweet clover in waste places, then we have right here practical evidence of the value of artificial pasturage. Where there is plenty of waste land, there certainly could be no objection to sowing sweet clover in any quantity. At all events, whether he sows any or not, the bee-keeper gets the credit of sowing sweet clover wherever it does grow. So long as sowing this clover in waste places does no harm, and so long as it is always a praiseworthy act to make two blades of grass grow where but one grew before, or rather, we may say, in this case, to make something grow that is useful in place of something that is valueless, there is no harm in the bee-keeper increasing his own salary by the method indicated.

As a general thing we may say artificial pasturage has been exploited again and again; but as a rule there has been nothing tangible or definite to show, for the reason that the acreage necessary to supply a colony of bees with honey-yielding flowers is vastly greater than the average person supposes—so great, indeed, that no one could afford to sow and cultivate and seed good land for the purpose. But when there are hundreds and perhaps thousands of acres of waste land, and the seed can be sown broadcast without cultivation, the situation is altered. Gleanings would like to have a show of hands from those who have been able to increase their annual crops of honey by scattering sweet clover in waste places, or, in fact, the seed of any honey-yielding plant on such waste lands. Dr. J. L. Gandy made great claims of what he was able to do; but investigation did not establish the claim that his yields of honey had been increased by the sowing of the seed of any honey-plant. As a matter of fact, the natural honey-flora in his locality was very abundant—sufficiently so to account for any flow of honey he may have had.—Ed.]

A BEE-YARD WHERE THE ANNUAL YIELD HAS BEEN MATERIALLY INCREASED BY THE SOWING OF SWEET CLOVER IN WASTE PLACES.

A HOME-MADE CHAFF HIVE FOR 30 CTS.

Something that Anybody Can Make.

BY FRANK McGLADE.

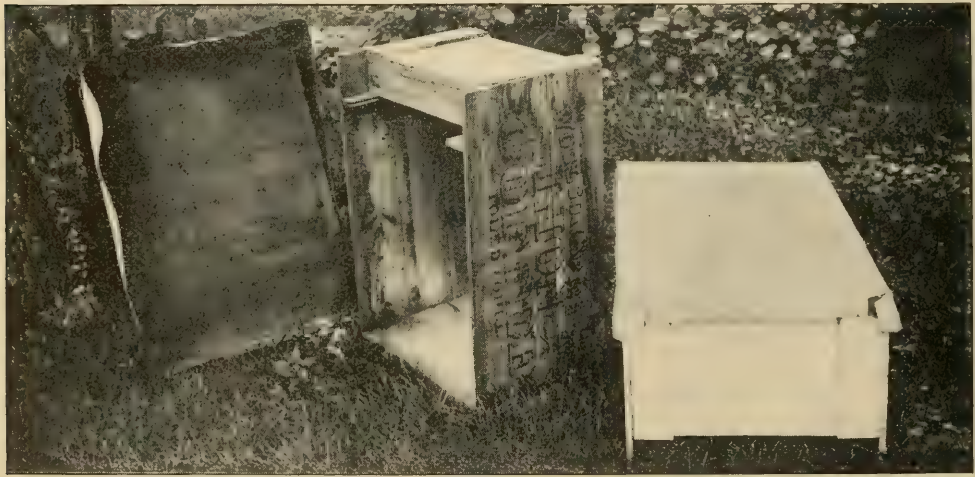
I had no bee-cellar and no place to build one, and no money to do it with. I was losing my bees every winter, so necessity compelled me to do something or go out of the business. I accordingly cast about in my mind, and alighted on a plan which I put into execution, with the result that I have solved the wintering problem so far as I am concerned. Here is the plan:

FRANK M'GLADE'S HOME-MADE-CHAFF-HIVE APIARY.

"Lion" coffee-boxes, found at all groceries, are just the right size to go over a Dovetailed hive and leave a 3-inch space around and on top. Take off the top and bottom; place them together and nail two cleats across. This I use for a bottom-board to set the hive on. Cut enough off from the edge so that the box will slip down and rest on the cleats. For the entrance I cut off a 3-inch piece of one end of the box, and turn it in at right angles, and nail. This piece thus nailed fits against the front end of the hive, just over the entrance. I take off the super and cover, and put on a piece of rag carpet, then pack the whole thing with clover chaff as full as it will hold.

For a cover I bought steel roofing, put up 100 feet in a roll. This I cut the proper length, snipped the corners, and folded the edge down.

I looked into the paper roofing—Neponsett, red rope, and paroid; and, while they are cheaper, I thought they would require a frame to make them durable, and the metal would last as long, and require less work to make, and are sure to stay on the hives. I painted the outside with white lead, but not the inside. I expected to have it to do on account of moisture; but I find there is no moisture. The clover chaff, and heat



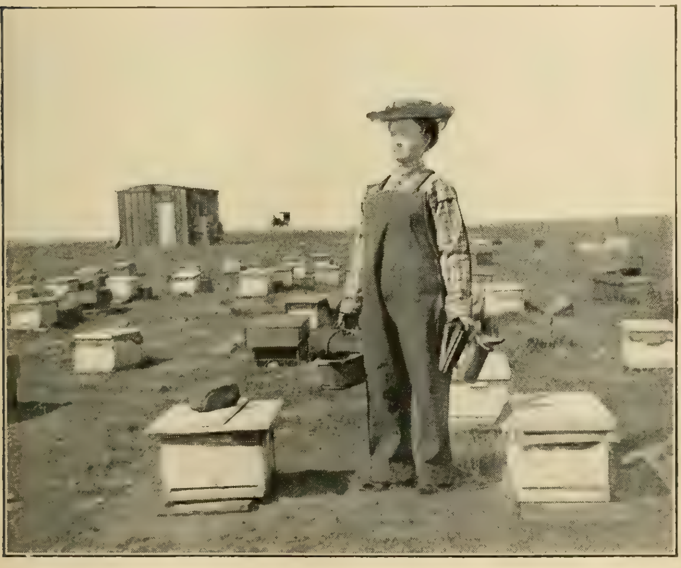
A HOME-MADE CHAFF HIVE MADE OUT OF DRY-GOODS BOXES.

from the bees, take it all up. The cover shown in Fig. 2 has been in use three winters, and the surface is as smooth as it ever was. To those who have never used clover chaff this will seem strange; but a trial will prove what I say.

In Fig. 1 you will see two hives with supers on. These I left all summer with the chaff on, but no cover, with the result that they never offered to swarm, and gathered more honey than any in the yard.

It has rained every day this summer; but the chaff in those hives is dry, and I shall use it again this year. Take the super off; fill up with chaff; put a cover on, and let it go at that.

I have not lost a colony in three years. They will winter on half the stores, and, no matter how cold it gets, nor how deep the snow, my conscience is easy, for I know they are warm. Winter before last they were shut up 85 days, and came out as clean as a new pin.



A SUITABLE AND CONVENIENT BEE-DRESS FOR WOMEN.

In the spring, when you cellar men are sitting up nights trying to solve the problem of just when is the time to set out the bees, I am easy, for my bees know when to come out, and will not come out too soon.

The boxes cost 10 cts. each, and the covers 20 cts., or 30 cts. per hive.

Pataskala, O.

BEE-DRESS FOR WOMEN.

BY MISS D. GOODALE.

Mr. Root:—I send you a photo of my apiary and its attendant. This is not intended to compete for a prize, but to show that women can work with as much ease and convenience as men if they haven't too much false modesty. Of course, the men do not know what a task it is to do outdoor work in skirts. If you wish to know, just try it and see the difference. You are just as liable to be the center of attraction until the strangeness wears away. The hands in the field will stop to look at you and smile, which will likely make you angry, as you are all tangled up in your skirts, and bees stinging you, and no pockets to put your tools in. Then you try to arise from the position you are in, and are compelled to untangle yourself. Gentlemen, try the skirts once, and see if you do not think my plan is all right. But you know we Western women are quite independent. We can vote, break bronchos, round up cattle, and climb mountains; but you Easterners must not class us with the Indians, for we are quite at home in the parlor with our Southern sisters, although we do *not* use tobacco.

Fort Collins, Col.

[The bee-dress for Miss Goodale is sensible, convenient, and not unbecoming. It is really a travesty on modern intelligence and the progress of the age in most things that custom and society demand that woman must be handicapped in the awful way that she is in the matter of dress. Bee-work, especially, demands for woman the same degree of convenience that it does for man, and we must admire the courage that prompts Miss Goodale to cater to convenience rather than to social custom.—Ed.]

HOW A LITTLE GIRL HANDLED BEES.

The Results of One Season's Work with a Wax-press.

BY SOJOURNER.

This miss of only seven summers had come all the way from her coast-country California home to visit her father at his apiary in the Sagebrush State, and to see the bees she had heard of but never seen, much less handled. She expressed herself as wishing that she could handle bees that way. "You can, daughter," he said. "I will let you do so."

"But they will sting me," she exclaimed.

"No, they will not if you do as I tell you. Put on my veil, and wait till I get the ko-

A PILE OF WAX CAKES FROM A GERMAN WAX-PRESS PURCHASED LAST SEASON.

dak and I will send your picture to GLEANINGS."

"All right," she said.

Mind you, she had never been in an apiary before, yet she had been stung when picking fruit, so she knew full well all about their "hot tails." She had confidence in her father, and simply did exactly as she was told to do.

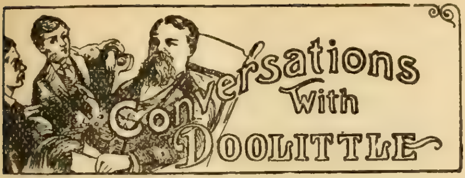
In a few minutes she saw the bulb pressed, but still held the frame of live bees, many of them on her hands, till it was taken from her grasp.

The Root wax-press you sent me last season has paid for itself already. To emphasize the fact, I send a photograph of what it rendered from old black combs similar to those which for years I have burned up. I asked the boys to pile up our wax cakes so I could photo them. They did as I ordered, and soon had them up so high my kodak would not reach the top. When remonstrated with for extending them into the air they simply said, "You wanted it piled *up*, so we did not pile it down."

Lovelock, Nevada.

[Please extend to the little lady who so bravely did as she was told by her father, the congratulations of GLEANINGS, and, I may say, all of its readers. And that reminds me that almost any one can handle a frame of bees, pick them up by the handful out of a cluster, and pat them on the back, *providing* he (or she) will follow directions. We demonstrated that with the 150 school-teachers who visited us, and whose pictures appear in our September 1st issue, p. 914.—ED.]

HOW A LITTLE GIRL HANDLED BEES.



HOW MANY BEES A COLONY SHOULD CONTAIN TO WINTER WELL.

"Good morning, Mr. Doolittle."

"Good morning, Mr. Smith. This is a nice morning after the frost last night."

"Yes, indeed. And its getting cold is what brought me over to see you."

"How is that?"

"It is like this: Three of my neighbors have some late swarms of bees that they are intending to brimstone for their honey soon, as they think that these colonies are too light in bees and stores for wintering; and as they do not wish to feed for the sake of keeping more colonies, they intend to kill them."

"That is the way farmer bee-keepers used to do when I was a boy; in fact, the bee-keepers of those days quite generally killed their heaviest and lightest colonies in that way every fall for nearly all the surplus honey they had. But excuse me for interrupting you. What has the killing of these bees to do with your coming to see me?"

"I have been thinking that these men would let me have the bees without killing, if I would take the bees from their honey, giving them the honey and I taking the bees."

"Quite likely. But what would you do with the bees?"

"I have over 100 combs full of honey that I have taken this summer, with the thought that I might need them this fall to give to different colonies as stores for the winter; but the good yield I obtained from buckwheat has filled the hives so that the bees have all they need, and I thought I could get these bees and put them on these combs of honey, and thus winter them, as I do not have as many colonies as I wish I had."

"That would be a good scheme, and one I have tried very many times with success."

"That gives me courage. But the point I wish to know most about is, how many bees should I put in a hive with these combs, as I do not suppose that many, if any, of these doomed colonies have sufficient bees for wintering separately? About how many bees should I use for each hive of combs containing from 25 to 30 pounds of honey?"

"It is calculated, I believe, that there are about 5000 bees in a pound, where they are taken from the frames without filling themselves with honey more than they naturally are when not disturbed. Then it is calculated that 20,000 bees make a good strong colony three weeks before swarming. But at swarming time there may be double this number, or more, so that, where we work for comb honey on the non-swarming plan, we usually calculate on from 40,000 to 60,000 bees as making a good colony for working in sections to the best advantage. But my opinion is that more colonies go into winter quarters, which are called strong, with from 12,000 to 15,000 bees than there are that contain a larger number."

"Then you think that 15,000 bees would be sufficient to put into each hive I could have filled with combs of honey?"

"That would be my opinion."

"And I can find out about this matter by weighing the bees I drive out for these neighbors, and so stock each hive with about three pounds of bees and a queen?"

"Yes; but you will have to drive the bees in order that you may have the bees and the owners the honey, will you not?"

"That is my expectation."

"By thus doing you will cause the bees to fill themselves with honey, so that one pound of bees filled with honey will weigh more than a pound of bees shaken from the combs would, as a rule."

"That is so; and it is something I had not thought about. How am I to get at this matter?"

"From several careful calculations I am satisfied that, if 5000 bees shaken from the combs, without any special disturbance of the colony, will weigh one pound, they will weigh fully two pounds when driven out as you propose, so that I should calculate I wanted from 5 to 7 pounds of these driven bees to each hive of combs containing 25 to 30 pounds of stores."

"I guess that is about right. At least I will try that weight. But how would you get at this matter — put the bees all in one great batch, and then dip out six pounds for each hive?"

"That would hardly do, for you would get the larger part of the queens killed, or three or four in one hive, while others would have no queen."

"That is so. I was a fool or I would have thought of that. Tell me just what *you* would do."

"I would take my scales along; and as each colony was driven into a box I would weigh them separately. Then each and every swarm that weighed 5 pounds or more I would hive separately in one of the hives having from 25 to 30 pounds of stores. In this way you will place each colony in about the same condition for wintering that it would have been in had it been left in its own hive—only you insure it sufficient stores for success along this line."

"That I can see readily. But how about the weaker ones, or those having less than 5 pounds of driven bees?"

"These I would unite in this way: Say you have the bees from one of these weak colonies which weigh 3 pounds, and those from another weigh 4 pounds. I would dump the two together, shaking them up well before running them into a hive; and if I had one weighing 2 pounds and another 4 or 5 pounds, these I would dump together in the same way. In short, take two, three, or four, as the case may be, those which will make the nearest to 6 or 7 pounds, and put them together, shaking them up so as to confuse them so they will not fight, and so they will mark their location better; then hive them on your combs the same as you would a swarm in summer."

"And you think the experiment will be successful if I use that number of bees to the hive, and do the work as we have talked?"

"All of my experience during the past says you will. In fact, in every case where I have gotten bees in this way they have come out good and strong the next spring, generally better than my other colonies, and done finely the next season. If I were starting in bees I would run them for combs of honey, for this purpose, for the first year or two, were I sure I could get for the driving all the bees needed to stock them."

"How lately have you tried this?"

"Only last fall. I heard of a man four miles away who found a runaway swarm, and hived it in a cracker-box. The person telling me said he was going to kill them soon, so I went up and saw him, asking if I would come and get the bees, giving him the honey if I might have the bees. He was only to glad to have me do this, as it relieved him of the disagreeable job of killing the bees, which job he knew nothing how to do. The bees from this cracker-box weighed five pounds two ounces; but they came out fully as strong last spring as any colony I had at the out-apiary, where I took them when hiving."

Heads of Grain
from different fields

PROPOLIS ON COMB HONEY; THE AVERAGE MAN'S OPINION OF HONEY.

Is there any way to keep bees from putting so much propolis all over my honey and sections as to throw all of it into No. 2? This is a fairly good season here, but, oh the bee-glue! I sometimes gather a large handful from one super, or more than I would get in a whole season in Eaton, Ind., my former home. I am compelled to sell my best at 15 cts. in the home market. People here think all this white honey is machine-made, and very little of it is used. Just to show you how little they know I will relate a little experience. A few days ago I was with a real-estate agent looking at some property. We passed a bush of some kind on which the bees were working very busily. I said, "Look at the bees!" I told him I kept bees at home. He said, "Take a handful of the flowers home and feed them to your bees." Another man asked if the honey was ready to eat, or did it have to be cooked or fixed up some way? Now, both of these were old men. Is it any wonder people believe the comb-honey canards?

Richmond, Ind. John Eshenfelder.

[Evidently, in your locality more propolis is gathered by the bees than in most places. I have no remedy to suggest unless you use the wide frame that protects the top as well as the sides and bottoms of the sections. Even with the section-holder appliance you can overcome the propolizing of the top to a great extent by using a sheet of paraffine paper laid directly on top of the sections. The bees will gnaw it somewhat at times, but you will secure a little cleaner sections. —Ed.]

HOW TO MANAGE LATE SWARMS THAT KEEP RETURNING TO THE OLD HIVE.

I'm a beginner in bee-keeping, and have watched Gleanings very closely for an answer to some difficulty which has come up in my attempts, but have failed to see any thing published so far, so I thought I'd write you in regard to it.

I started in the spring with three hives; and as the weather would not allow them to swarm early I had only one or two swarms in June, the most of them swarming in July and August. I had much trouble hiving my swarms, as they would return to the old hive within a few hours after capturing, and would do this three and four times before they would settle in the new hive. They would also build the honey all together, which makes it difficult to get at it. Some of the boxes have very little in, and others not touched. The bees don't seem to be working very much now, only flying around buildings and going into all the cracks and holes they can find on the building, as if looking for a new home.

Will those swarms which came in August amount to any thing? and what can I give them if they haven't honey enough to last them through the winter? I have now fifteen colonies. Rodulph Zeighe.

Corona, S. D., Aug. 24.

[From what you write, it is evident you have been having after-swarms, and it seems to me those bees *did exactly what they should have done*—go back to the old parent colony where they belonged. Your little swarms were possibly so weak that, when you hived them in a large hive, they saw the utter futility of trying to build up a large cluster, and concluded it was better to go back to the old home. Second and third swarms by themselves are not worth much. To avoid them cut out all queen-cells of the old colony, or keep it down to one virgin or laying queen. Second swarms that come out in August will be all right for winter if they are stimulated by feeding so they can continue brood-rearing till September. But it usually takes an expert to take such late swarms and get very much out of them.—Ed.]

THE GIANT BEE.

It fills my heart with joy to hear that Mr. Benton is on his way to India for the purpose of getting giant bees. If the giant bee is as good in other ways as our Italian bees are, and if they are large enough to get all the nectar out of red clover, they will be worth millions of dollars to both bee-keepers and farmers. Just think of it! What would a queen be worth to me if her bees could get all the nectar out of red clover? I believe that there is close on to 600 acres of red clover in reach of my bees, and I am getting some of the nectar from it, but not all; and I am satisfied that my bees will work red clover as closely as any bees in the country; and while Mr. Benton is gone after larger bees let every bee-keeper try his best to improve his own stock.

Velpen, Ind., Aug. 1. W. T. DAVISON.

[I doubt if the tongues of even the giant bees would be long enough to *reach to the bottom* of some of the corolla-tubes of red clover. The tongues so far measured are only slightly longer than those of some Italians; but we shall be glad to have these new bees introduced into this country.—ED.]

WHAT TO DO WHEN BEES PERSIST IN BALLING A QUEEN.

What would you advise me to do in the following cases? July 14th I tried to introduce a queen to a colony of bees. I followed the directions on the cage, and on opening the hive on the fifth day I found the queen balled. I picked her up and smoked the bees off, then I put some tobacco in my smoker and smoked the whole colony and queen, and let them go for about twenty minutes; then I looked again and found her balled again; then I picked her up and went to another hive and took out two frames of hatching brood, brushed off the bees, and put the queen and brood into an empty hive with a wire screen on the bottom, and put it on top of the queenless colony. I let it stay on for three days, then I put it into the hive with the young bees clustering around her, and in half an hour, on passing the hive, I noticed through the entrance that the queen was balled again. I took her out, put her into a cage with some young bees, and put her on top of the frames with the cardboard over the hole in the cage. After six days I found my queen lying on the outside, very nearly dead, and that was the last of her, as I killed her then. That the hive is queenless I am sure, for there is not a bit of brood in the hive; and, furthermore, I let the bees all run through an Alley trap into a new hive. Can you tell me what the trouble is?

Here is another question: Should this season's queen reared in May stop laying on or about the 15th of July if she is of any use? I have a colony that I made up this spring, and the queen is not laying.

CHAS. A. STAPF.

Albany, N. Y., Aug. 1, 1905.

[It is a little difficult to explain exactly why the bees balled this queen. Ordinarily I would assume that the bees had in the hive something that they recognized as a queen — probably a laying worker. But I have noticed this: When a colony commences balling it is likely to keep it up; and the only thing to do is to satisfy its whim by giving it a ripe queen-cell and let it rear its own queen. And, again, a queen that has been balled a number of times by one colony is quite liable to be balled by another. She possibly acquires an odor of angry bees, and becomes from that time on a *persona non grata* to all bees. Again, it is possible that the queen you attempted to introduce was an old virgin. This might account for the excessive balling described.

The time when a queen will stop laying for the fall will vary a good deal, according to the conditions and locality. After a honey-flow queens will ease up on laying, and sometimes stop altogether. Ordinarily we do not expect egg-laying to stop much before the first or middle of September in most of the Northern States.—ED.]

DOUBLE-GROOVE-AND-WEDGE PLAN OF FASTENING FOUNDATION CONDEMNED.

I have been putting in foundation for a neighbor, in Hoffman frames. While working with your frames made with molding on the under side of the top-bar I got mad. But when I worked with a lot with two grooves and a three-cornered wedge to drive in, I got madder. The grooves are never made deep enough to hold the foundation, the wedge will not stay in, and half the foundation will slip out unless waxed in, and that is too much work for me. I do not think any one can maintain a Christian character long and use the double-groove-and-wedge frame. Try the wood frames and be happy. Make the top-bar exactly like the old-style window sash, with a strip to tack in for putty. Lay in your foundation as you would glass in a sash; push the strip up *tight* against the foundation, and tack in firm, and it is done, and the foundation can not be pulled out. There is no patent on my frame. Try it once and you will not want any other.

Santa Barbara, Cal. DELOS WOOD.

[On carefully reading what you have to say, I am firmly convinced that you did not read the directions that go with the frame; or if you did read them you failed to carry out the instructions. If the frames were made by The A. I. Root Co., you should have received instructions that you are not only to put the wedge in the groove, but that you were to *drive it below the surface of the wood.* I quote from the directions as follows: "But in order to make the wedge stay in place it must be driven below the surface of the wood, as at 3; otherwise it will crowd out." Of all the methods of putting in foundation, this seems to give the most satisfaction. The plan you describe may be a good one. It was originally introduced by E. Kretchmer. The idea of a double groove and a wedge came from England; and so many of our customers urged its adoption that we finally put it out on the market as regular, and the other manufacturers have generally followed suit. No, we have had more letters expressing satisfaction with the use of the double groove and wedge than we have had with any other method of fastening foundation.—Ed.]

DOVETAILED HIVES; THEIR DURABILITY; A CASE IN POINT.

It is true, when timbers are exposed to the weather across each other they are much more liable to decay, page 953. But in my opinion the Dovetailed hive lasts the longest. I will tell you what makes me think so. About twelve years ago my father bought two hives—one Dovetailed and one lap-cornered. Then he selected some good lumber and made another lap-cornered hive. Four years ago I started to take care of the bees: then the lap-cornered hives were starting to fall apart, but the Dovetailed was solid. I nailed the lap-cornered hives and painted the three; but the two wouldn't stay together, for they were decayed; but the Dovetailed is as solid as a new one yet, without any extra nailing.

You have read that, when timbers cross each other, each is more liable to decay. I think so. But if a hive is solid, and painted, the paint will fill the cracks and stay there; but if the hive is a little wiggly the paint will crack in the corners, and the water get a chance to soak in, and so the wood decays. I think the more solid the hive the better. I've got A. I. Root's Dovetailed hives now, and they satisfy me.

Manson, Iowa. H. F. Steckelberg.

[Your experience is quite in line with that of others who have made similar comparative tests. For that reason I believe that the dovetailed (or, more properly speaking, lock corner) feature has come to stay in hive construction. As it has been adopted by nearly all manufacturers of bee keepers' supplies in the United States, this fact alone indicates pretty well its popularity as well as its durability.—Ed.]

UNITING TWO OR MORE SWARMS.

I wish you would give the best method of uniting two or more swarms – I mean swarms that come out a week apart, or those that are weak from any cause. I want to get on to some good method whereby I can unite them any time I wish, either spring or fall. J. I. Earl.

Bunkerville, Nev.

[There is no particular difficulty in uniting colonies of gentle bees. As a rule the two lots can be put together without any trouble. But cross bees, or extra-yellow bloods, or hybrids, will sometimes fight like hornets when united. Usually all fighting will cease if the bees are smoked. But we have had cases where extra-yellow bees, Cyprians, and Syrians, in spite of smoke, practically annihilated each other.

In uniting, of course many of the old bees (if of the same yard) will return to the old stand. These should be carried back again, and shaken in front of the entrance. If this be repeated once or twice there will be but very little going back afterward. Bees that have just been moved from an outyard to the home yard, and before they have had an opportunity to fly, can be very easily united, and the two clusters will stay together. Ordinarily if there are weak colonies at an outyard, and there are likewise weak ones in the home yard, the two lots can be united; but the out bees should, of course, be put on the stand of the home bees. If they be smoked a little at the time of putting them in, there will ordinarily be no trouble whatever.—Ed.]

YOUNG BROOD ATTACHED FIRMLY TO THE BOTTOM OF THE CELL.

I have two colonies of bees with an affection of which I see no mention in any book on bee culture. Both have plentiful stores; yet just before the young bees should hatch, the bees drag them from the hive. On examination the young bees are found to be adherent to the bottom of the cell. Some of them succeed in getting themselves free, bringing the cocoon with them firmly attached to the extremity of the abdomen. Others cut away the entire comb in trying to free themselves, leaving great holes in the combs. One of the colonies was infected from the other by giving them one frame of brood, though the condition has spread to all the combs in each hive. The bees drag out some, while still in the pupa stage.

Thos. J. Brown, M. D.

Gallatin, Tenn.

[I am not able to explain just why the young brood was attached to the bottom of the cells. I have seen cases of this kind, but I always supposed it was due to the fact that the brood had been chilled or overheated; but the case you describe seems to be more than this. Constitutionally the queen may be weak, resulting in deformed bees. Perhaps some subscriber can enlighten our friend.—Ed.]

THE DUAL PLAN OF INTRODUCING QUEENS.

I have been interested in the dual plan of introducing queens. When I desire to supersede a queen in a full colony, can I put a caged *virgin* into the hive four or five days before taking out the old laying queen, releasing her at that time, and have her accepted, or can this be done with nuclei only? Frederich H. Harvey.

Battle Creek, Mich.

[Yes, you can carry out the dual plan of introducing queens with full colonies, the same as with nuclei. Ordinarily you can introduce a virgin in just the way you describe; but the old queen should, of course, be removed entirely before the young one is released.—Ed.]

"GOLD DUST" FOR REMOVING PROPOLIS.

I notice an item in last issue of GLEANINGS about removing propolis from the hands. Did you ever try gold dust? I have used this for years, and never saw any thing better. Soap the hands first, then add a teaspoonful or less of the gold dust, and watch it cut up the propolis.

Effingham, Ill. G. W. DYKE.

[I have never tried gold dust, but shall be glad to do so at the next opportunity. So far I have found nothing that will remove the real sticky propolis that we find in the fall, promptly and easily—not even gasoline or sapolio, as recommended by the next writer. Either one will take it off providing you scrape long enough.—ED.]

SAPOLIO FOR PROPOLIS.

I see on page 760 where you used benzine and lava soap for removing propolis. Why don't you give my remedy a trial? It is sapolio. It never fails with me, and I have the worst bee-glue I have ever seen anywhere. S. G. KILGORE.

London, Ohio.

[See answer above, to Mr. Dyke.—ED.]

PROPOLIS REMOVED BY SAPOLIO.

Your experience with propolis and lava soap, p. 760, leads me to question whether you have ever tried "hand sapolio," a soap now largely advertised for toilet use. Having been out of touch for several years with bee-keeping (during absence from home) I do not know whether the above-mentioned cleanser has ever been recommended in this connection. There is nothing "in this locality" that I know of that will free the hands from propolis and smoker stain as well as hand sapolio and a good fiber nail-brush (I find fiber better than bristles), especially if a little ordinary laundry bar is used in conjunction with it. If you haven't already tried it I think you will find in it the thing for which you are looking.

I may add that I have no interest whatever in the sale of this article, save that its value as a propolis remover appeals to me as a commercial man who must avoid even the appearance of being lax in matters such as cleanliness of hands, etc. Perhaps this has been suggested before: if not, I am sure its use will be found a great help to the bee-keeper who wants his fingers freed from the sticky traces of the day's work.

R. B. ROSS, JR.

Montreal, Canada, Sept. 8.

QUEENS RAISED FROM BROOD BROUGHT FROM ANOTHER APIARY.

It may interest you and your readers to know that I have taken brood from a neighboring apiary (that of Mr. H. H. Jepson, of Medford, about five miles away) and raised queens in my own yard from it. I repeated this again this season so far as fetching the brood is concerned, and expect to raise queens again. I carried the strip, which was about 3×6, in a piece of wrapping-paper as an ordinary package.

JAMES M. PULLEY.

Melrose, Mass., Aug. 7.

[Some years ago we used to do quite a business in sending little patches of brood by mail to customers. Where larvæ were lavishly supplied with food the recipient could put it into prepared queen-cells and get young queens from a selected breeder a hundred miles away. But such brood can not go much over ten or twelve hours without starving. It is perfectly feasible to carry young larvæ from one yard to another for grafting purposes, but it must not get chilled.—ED.]

VENTILATOR IN A BEE-CELLAR.

I expect to partition off a place in the cellar 11×12 ft. for a bee-room. I shall lath and plaster against the cellar wall. There will be one window which I shall close up. The room is 8 ft. high. The cellar is dry.

1. What ventilators, and where would you put them in?

2. Would it be necessary to plaster overhead to keep out the noise from above?

3. How many colonies should be put in a space of this size?

Jefferson, N. Y. CHAS. M. HARRIS.

[1. I would have no ventilators connecting directly with the air outdoors. A door opening into the other cellar—that other cellar having direct connection with outdoors—will give all the ventilation required, ordinarily.

2. The plaster will be unnecessary. Noise overhead does not particularly bother the bees.

3. This is a hard question to answer, as every thing depends on how well you can control the temperature. If you can keep it in the range of 40 to 48 you might be able to squeeze in 150 colonies. Ordinarily 75 to 100 would be enough.—ED.]

SECURED ONE CENT ABOVE THE MARKET ON PLAIN SECTIONS OVER THE BEEWAY SECTIONS.

I sold some honey to-day to the local trade in 4×5 plain sections, and got one cent above market price without asking it. I will never retrograde to the 4¼×4¼ beeway sections.

Denison, Iowa. GEO. W. STEPHENS.

Do you think my queens will mate this year which I raise from now on? Drones are not very plentiful, and we have much cool cloudy weather already.

Milroy, Pa., Sept. 15. A. H. KANAGY.

[After about the middle of September there is a good deal of risk in getting queens mated, as drones are liable to be quite scarce at that season of the year. Unless you had previously arranged to have a lot of them reared beforehand, many of the late-reared queens would prove to be worthless.—ED.]

FEEDING BEES CORN BREAD AND SUGAR SYRUP.

Three years ago, and again this year, a farmer fed his bees by baking cakes of corn bread, splitting it, saturating it with granulated-sugar syrup, and setting it out 50 yards from the apiary of 12 colonies. They took it up, bread and all. It seems to be a success. What do you think of it?

Elk City, Kan. **Dr. J. T. Blank.**

[At certain seasons of the year when natural pollen is not available, bees will take meal in almost any form as a substitute for pollen; but if the bees require feeding at all, better not give them meal. Give them just the clear syrup. The ordinary pollen that nature supplies comes on soon enough to take care of brood-rearing as early as is advisable for the bees to breed.—Ed.]

BROOD IN SECTIONS.

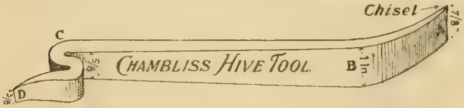
I went to take a super off one of my stands, and found that the bees had built brood-combs, and had plenty of young bees in the honey-boxes. Can you tell me the cause? There was not much honey in the super. Can you tell us why there was not much honey, and why they raised young bees in the super? Our hives have eight frames in the lower part. **C. H. Lane.**

Jobs, O., July 17.

[Ordinarily there will not be brood in sections unless the brood-nest apartment has no empty cells in which the queen can lay. It is a very difficult matter to get queens to lay in sections, even when you try to force them into them. If there were plenty of egg-laying room in the brood-nest, and the queen laid upstairs, I should be inclined to credit it to a freak of that particular queen. —Ed.]

ANOTHER HIVE-TOOL.

I send a sketch of a tool I use in my apiary. A is a chisel for cleaning frames, $\frac{7}{8}$ in. wide; width at B, one inch, tapering to $\frac{5}{8}$ at heel marked C, while it is $\frac{3}{8}$ at point of pry, marked D. I have used this tool for four years, and find it indispensable in the apiary for prying, scraping off bits of combs and propolis, and also for light nailing, such as one finds sometimes to do. I had it made to order, of slab steel. The sketch shows it edgewise. **W. F. Chambliss.**



Enloe, Texas.

SULPHUR CURES PARALYSIS BUT INJURES BROOD.

In regard to an article in the July 15th issue, stating that sulphur sprinkled on the combs will cure bee paralysis, I will say I did that last year and cured the paralysis, but the sulphur killed the unsealed brood, and the bees would not clean out the cells. This sulphur dust in the cells also killed the eggs as fast as the queen laid them. I had to change the combs to save the swarms. Only one colony had it this spring. I brushed the bees off the combs and sprinkled them with sulphur, and then returned the combs. The paralysis stopped. **C. Stimson.**

Hally, Col., Aug. 6, 1905.

[It is not recommended to sprinkle combs containing brood with powdered sulphur. If you will refer to the directions given by Mr. O. O. Poppleton, the author of this particular treatment, you will see that he distinctly states that all combs containing brood must be put into other hives; that there is no danger in doing this, because the disease is not carried through the brood.—Ed.]

LOOKING FOR QUEEN-CELLS WITHOUT OPENING THE HIVE.

In your footnote to my article for July 15 you say that my plan contemplates the use of a double-chamber or two-story hive with a super on top.

This was not my intention at all, unless two shallow chambers were used as *one* hive when it would apply. The illustration which I sent with my article showed clearly that it was to be used in connection wlth a single-story hive, having one or more supers which were to be fastened while the hive was tipped back for examination.

Not one hive in a hundred will have the usual number of cells preparatory to swarming, so that some can not be seen while the hive is tipped back, and the bees smoked up in the combs. **F. H. Cyrenius.**

Oswego, N. Y., July 19.

[Fr. Greiner gave corroborative testimony to the same effect, p. 965, Sept. 15th issue. I stand corrected.—Ed.]

IS THE COLONY QUEENLESS?

I see in the last journal that a queenless colony will not carry in pollen. I have two colonies that are strong, and that carry in pollen; but they have no brood. Have they a queen that is not yet fertile? Will a queenless colony having a fertile worker or two accept a queen without balling?

Woodland, Cal. **A. B. Griggs.**

[You are liable not to find brood in a colony after the main honey-flow is over. Your bees may have been carrying in pollen, and still the queen be in the hive just the same. —Ed.]

HIVES WRAPPED IN PAPER FOR WINTER.

In my article, page 913, I should have said the hives wrapped in paper (to all appearances) wintered better than those wrapped in oilcloth. They also had the advantage of dry-goods boxes turned over them to protect the paper and also for the purpose of a windbreak. **M. A. Hudson.**

Greensburg, Ind.

BICYCLES; BEVEL GEAR RATHER THAN CHAIN WHEELS.

Friend Root:—Just a line to say I'm somewhat surprised at your answer to Mr. Cary's inquiry regarding a bicycle. I have used a chainless for years, and would not even think of going back to the old vexing chain wheel. The chain is a tremendous annoyance, and considerable danger—always an exceedingly dirty, stretchy, and troublesome affair. The chainless feature, so far as I know or have heard of (except you), is *perfection*. Chainless wheels are *very* plentiful around here. Two of my nieces have them, and are delighted with them. Never, before reading your answer, had I heard of the bevel gears getting "out of alignment," but are always exactly so—require no care, never fail or wear out, and require lubricating but once or twice a year. Every one I know using the chainless is loud in its praise, and I have never known one using it to go back to a chain wheel. My nieces have Cleveland and Tribune wheels. My first chainless was the Crescent. My present one is a Tribune. Of course, all have coaster brakes—an exceedingly valuable feature. I have a hand brake also—extra safety is a hobby of mine. I have also a spring frame in my wheel, and it is a very desirable feature. No one can have any idea how much more comfortable a spring frame is till he has used one. I am 58 years young, and have used many wheels with much enjoyment and profit. I feel very sorry for those who have none.

A. T. Cook.

Hyde Park, N. Y., Sept. 21.

[In connection with our machine-shop we had for years a bicycle-repair department; and if you could see some of the bevel-gear machines that have been brought to us for repairs, and some of the same type that have been thrown out on the scrap-heap that were otherwise good except the driving mechanism, I think you would agree with me in recommending chain wheels for the *average* rider. We have some now on hand that we will sell dirt cheap. You and your family are probably careful riders. I rode one bevel-gear model some three years without a particle of trouble, and I could do it again. For my own individual riding I would prefer this type of machine; but, mind you, when I sold my chainless to another party it was not two months before he had the thing all out of alignment. We repaired it repeatedly, but it did little good. I gave another chainless to my boy; but in three months' time it went to the bad — not because he abused it, but because other boys would ride it occasionally. The *chain* wheels, for the average rider, stand the hard knocks. While the chains themselves stretch, and sprockets wear some, these parts can be renewed at a very small cost. —Ed.]

BEES IN A CHURCH.

The Methodist church at Clarksville, Texas, is a handsome pressed-brick edifice with two main entrances. One entrance is on the south side, and is of the Gothic style. On the right-hand side of the door there is a crack in the facing, about one-fourth inch wide. A swarm of bees found this place, and took possession for a home. They have been there for two years, and have been known to sting but two persons, and they were teasing them. In April they swarmed three times in two weeks. Two of the swarms were hived successfully.

Clarksville, Tex. Woodland Finney.

WHEN THE BEES CAP OVER EMPTY CELLS.

In reply to the article of Fred Wulf, page 777, I would say I have had the same experience many times during the extracting season, and it *usually* occurs about the close of the flow, or sometimes *during* the flow, when there is a cessation for a day or two caused by a bad storm. Just why they do this is uncertain, unless because of the cessation, or from force of habit; it usually occurs within 24 or 48 hours after returning the combs to the hive after extracting, and sometimes in 12 hours, but never when the flow is normal. Elias Fox.

Hillsboro, Wis., July 21.

SWARMS GOING OUT WITH VIRGINS.

Referring to Doolittle's conversation, July 15, I will say that I have had several cases of swarms coming out with virgin queens when out to mate. Where a strong colony loses the queen during the swarming season, and starts queen-cells, and the same are all removed but one cell, the bees are almost sure to swarm when the young queen goes out on her wedding-flight; but with me these swarms always go back to the old hive, even after being hived on a new location.

New Milford, Pa. F. W. Dean.

WHY THE BEES SWARMED.

Referring to the report by Don Mills, page 727, I would say that I have tried Mr. M.'s method, and found it so far satisfactory. The trouble above, to my mind, is that Mr. Mills' colony was prepared, or about so, to swarm when he operated on them, and they followed out their inclination. If he had taken out all cells, and had his queen clipped, or put on a queen-trap and left his hive on top for nine or eleven days, then taken it off with just enough bees left in it to care for the brood, or left it stronger, as he thought best, giving them a queen, or let them hatch on, I think he would have found it all right. Wm. Filmar.

Loyal, W ., July 11.

SMOKER FUEL.

I find old shingles make the very best smoke wood. They readily take fire. When well smoking, fill up with the ones not so rotten as the ones you start the fire with. They last as long as most smoker fuel.

Roseville, Ill. Mrs. L. C. Axtell.

A RAILWAY APIARY.

In the ranks of bee-keepers there are many who find it difficult to handle and carry a super weighing 40 or 50 lbs. I found it hard work when wearing an artificial limb. As I am compelled to use crutches it is almost impossible for me to carry even empty hives. As I was driving across the railroad track one day, where sweet clover was growing very profusely on both sides of the track, it struck me that, if I had such a track, and on it a push-car (such as section men have for moving ties, rails, etc.), I would string out my hives on both sides of the track so that I could manipulate them sitting on the car. I could carry, on the car, hives, supers, tools, and every thing I should need. When taking off honey I could run the loaded car right into the honey-house (built over one end of the track), entering a wide door which should open like a window hung on weights. I could have a canopy top for shade. In robbing times the sides might be screened, and a bee-tent be let down like an awning. The track may be built of 2×4's for rails, and the car can be made by almost any mechanic. Track and car should, however, be well made so as to run easily. J. F. Eggers.

Crichton, Ala.

[If you will turn back to the first or second volume of this journal, for 1873 or '4, you will see that A. I. Root once had what he called a railway bee-yard, the rails consisting of 2×4's spiked on cross-sticks, the entire track reaching from the honey-house to the roadway. The plan was all right except for the expense. Then, besides, in the back yard of an ordinary village property it would be impracticable to make a long apiary, simply for a lack of room. In your case it would be just the thing.—Ed.]

AN EASY WAY TO PUT PAPERS IN THE SHIPPING-CASES.

I will give my way of putting paper into the shipping-cases, as others may be bothered to get them in as I was. I lay the paper on a board or other flat surface, and fold over one side and one end the width I want it to turn up, and then place that side and end into the case, first holding it against the side and end of the case, and smooth the paper out with the other hand, and the work is done. J. Ridley.

Monticello, Minn.

THE ALEXANDER PLAN A SUCCESS.

I note the reports of the Alexander method are rather discouraging. I am very well pleased with it. I started with 25 colonies; allowed one to swarm, and used this method on the rest. None of them swarmed. The old colonies were ready for supers sooner than natural swarms would have been, and the whole yard is in fine condition for buckwheat. W. L. Hine.

Newfield, N. Y., July 31, 1905.

THE RANGE OF BEE-FLIGHT TO BASSWOOD; DOUBLE-WALLED HIVES A GOOD INVESTMENT.

There are many basswoods within 3½ miles of my yard. Are they within my range? Is chaff packing or indoor wintering necessary in a mild climate like this? Arthur McMichael.

Laurel Springs, N. J.

[The distance of 3½ miles from basswood would be somewhat beyond the range of ordinary bee-flight. Your better way would be to move a small outyard up to the basswoods the coming season.

The chaff packing for outdoor wintering would do no harm, and might be the means of saving a good many bees. We regard the double-walled hives as a good investment in our own climate, even in summer time, to protect the brood during cool nights. We certainly would not advise you to winter in the cellar or indoors in your climate.—Ed.]

A REPORT ON THE PLAN OF WINTERING A PLURALITY OF QUEENS IN A HIVE OUT OF DOORS.

Seeing your request on page 871, for reports on W. M. Reiber's plan of saving queens, I here state that I have been using the plan for three years in plain Dovetailed hives, with the only difference that I use thin board partitions, filling, of course, bee-tight up to the cover and down to the bottom-board, with a block in the entrance to keep queens from going around the end of division-board. She will not come outside to go around into the other part. I have wintered those weak stocks that had queens in one hive and they did as well as any in the yard. E. M. Callaway.

Gravel Ridge, Ark., Aug. 23.

YOUNG BEES CARRIED OUT; WHAT DOES IT MEAN?

My bees are carrying out the young bees while in the larval form. What is the cause? Will you give a short description of pickled and black brood? also bee paralysis?

Milano, Texas. J. R. Smith.

[Ordinarily we say that, when very young bees or larvæ are carried out, it is the work of the moth-worm. But overheating or chilling of the brood may cause the same result.—Ed.]

DRONE BROOD FOR FISH-BAIT; HOW TO PRESERVE IT.

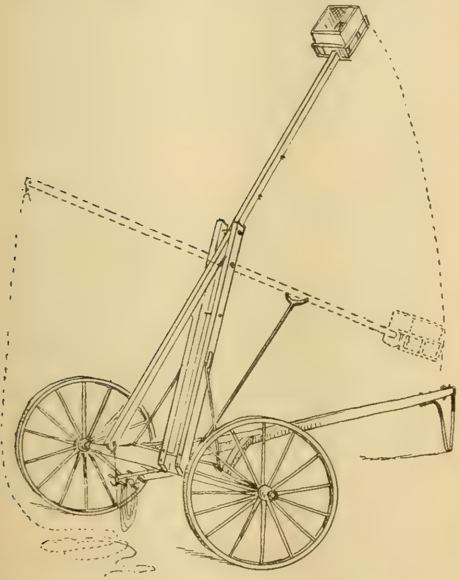
I believe the production of drone brood for fish-bait may become important in connection with the production of honey if some means can be discovered for preserving them for a considerable length of time so as to enable them to be placed on the market. Could they not be treated with some chemical, and sold in cartons as section honey is?

Atascosa, Tex. L. W. Avant.

A SWARM-CATCHER ON WHEELS.

I am sending you an illustration and description of a device in the form of a derrick which I have mounted on the hind axle of a wagon. This I use for getting swarms of bees out of trees, and high and difficult places; and it works so well, and I am so highly pleased with it, that I wonder the idea was never thought of before. To make it, get two scantling, 2×4, 16 feet long; saw one in two in the center. To make the upright pieces, bolt them to the hind axle about two inches apart, then at least one bolt at the top to hang the sweep in. Then procure a shallow box or framework, at the end of the sweep to hold the hive, and tie a small rope on the other end of the scantling.

When you get to the swarm, pull down on the rope until the hive is just under the bees, then tie the rope to the end of the coupling or reach; then with a forked stick, or something of that kind, reach up and shake the bees off on top of the hive, then back off a foot or two, and they will soon all settle on the hive; then swing the cart around clear off the limbs and let them down with the rope.



I can get a swarm of bees with this rig, from a few feet high up to 18 feet, and the Manum swarm-catcher could be attached to the end of the sweep in order to get swarms at a still greater height.

If a swarm of bees should settle near the top of an evergreen, say twelve or fifteen feet high, or any kind of a tree and right around the stem where they would be well protected by small limbs, it is quite difficult to get them with a Manum swarm-catcher. With my way you can shove the hive close up to the tree just under the bees; then go up on the ladder on the opposite side; punch them off into the hive, or smoke them out if no other way. Then, again, if they were to settle near the center of a large apple-tree where it is quite brushy this rig will be found very valuable. Then for ordinary work, where a swarm is settled out on the end of the limbs, it is so handy to run up with the cart and then fix the hive on the end of the sweep, then raise it up just under the bees and shake them off.

Robertson, Ia. N. YOUNG.

[Your machine may work very satisfactorily; but when a swarm is higher than 15 or 16 feet above the ground, a swarming-pole would be more serviceable. But a better practice is to clip all queens' wings, or put entrance-guards on all the hives. It ought not to be necessary, except in case of after-swarms going out with virgins, to shin up trees after swarms; and even these after-swarms can be avoided, to a great extent, by good management.—ED.]

SELL COMB HONEY BY THE POUND.

I see in GLEANINGS for Aug. 1 some articles on section honey and weight. I think the trouble is in the producer catering to the wants of the retailer. I insist that it is right that all honey in comb be sold by the retail dealer by the pound or ounce, as well as by the producer and wholesaler.

In buying honey of a grocer, if you have the pick you will try to select the finest one in the crate, leaving the others, and so on until there are three or four culls which he sells to somebody at a discount by the weight system. He has nothing to discount on, and so it is more fair to himself and the buyer. But most of the retailers are a little near, and insist on a 24-section case weighing only about 20 lbs. net. Now, that is not right. It is not fair. I insist that the producer and wholesaler have honey retailed by the pound and ounce. I insist that *that* plan will hurt no one, but be an advantage to the retailer. We shall always want honey in as nice form as can be, and comb honey in the section is about the best yet. Do you not think so? I have made another start in bees, and I send you a picture of that start. I shall keep you posted in regard to its growth along scientific lines.

E. A. NEWELL.

Massillon, O., Aug. 7, 1905.

[Mr. Newell has presented in a nut-shell the best arguments I have seen yet against selling honey by the piece. If the grocer really desires to deceive his customers by representing that his sections are full weight, then we should discourage the practice by every means possible; but I can not believe that this is the intent of the average retailer. Of course, if a whole case of sections were presented, and the customer were allowed to take his pick at so much a piece, the last few sections would be the poorest, and yet scarcely below the general average. But such a practice as this could be checked by keeping the case under the counter, and setting only a few sections on top of the showcase. But if the sections have been carefully sorted, there ought to be no real choice. One might be fuller, and another not quite so full, but present a little whiter and cleaner comb.

To retail honey by the pound and ounce necessitates uneven change, delay, and bother. The whole grocery business has gravitated largely to packages all ready to hand out, containing just so much food stuff. Even sugar is beginning to be put up in regular-weight bags. It has now come to be the fact that one can go into a grocery and get pretty nearly a whole lay-out, without using the scales once. Shall we bee-keepers try to compel the grocers to go back to the old way of getting exact ounces and then figuring up each time the actual price of the section? You can lead a horse to water, but you can't make him drink. Many grocers will not handle honey, and why? Because we bee-keepers have not catered enough to the custom that now prevails, of regular size and regular packages at even change. If he must weigh out every section, and figure up the price at uneven change, he will handle something else.

We will grant, for the sake of argument, that one customer will get a box that by weight will be one cent less, and another customer a box that will be one cent more than the standard price—say 15 cents. If either customer buys half a dozen boxes in a year, by the law of averages he will not be much out of pocket after he has bought his six sections. If he buys a dozen at different times, the difference will be almost infinitesimal. Do not forget that the law of averages corrects many of these things just as it does the value of eggs. One dozen eggs might weigh several ounces more than another dozen; but no one would think of buying eggs by the pound.—Ed.]

WATERING CELLAR-WINTERED BEES.

Some time ago I noticed an article in a Danish bee journal on the subject of preventing poor wintering. I might translate all of it, but will now refer only to what is said about the necessity of water when bees commence brood-rearing in the spring. The writer, in speaking of the importance of having strong colonies in the spring, says that the bees must start brood-rearing very early. In the cellar they can not do this to the extent they ought to, because they lack water. Outdoors, if water is not close by or furnished, they will, even when it is too cold or stormy for them to fly, go out in search of it, never to return. More bees are lost this way than we imagine. This is a reason for having only weak colonies when harvest is at hand. No method is given for watering bees outdoors or in the cellar. If it is of such paramount importance to give water in the cellar from the latter part of February, as this article seems to indicate, I should like to know. Mr. Editor, you may have informed us fully on this matter, but my memory can not place it.

Wausau, Wis. G. A. Lunde.

[Outdoor wintered bees will usually get all the water they require, by the condensation that will take place near the entrance, and sometimes on the sides of the hive. This condensation is the result of the warm breath of the bees, which, on striking the cold air near the entrance, or the cold sides of the hive, condenses. The same thing occurs to a lesser extent in the cellar. But it is generally considered advisable to keep down brood-rearing for indoor wintering, if not stop it altogether. In this country, at least, the giving of bees water in the cellar is not practical. If any one has any thing definite to offer, based on actual experience, I should be glad to have him tell us about it. —Ed.]

BLEACHING COMB HONEY.

As my honey was rather dark I undertook to bleach it by sulphur fumes followed by exposure to the sun. The result was that in such frames as were exposed under glass, and no ventilation, the comb melted down and the honey ran off. Eight frames of honey were lost. Where was my mistake?

Elyria, O. R. B. Cary.

[You explain the cause of failure yourself; namely, the lack of ventilation. The honey was doubtless exposed too close to the glass; and if it were shut up in a box or any little compartment where there would be no ventilation, the results would be exactly what you secured. In other words, you possibly made what we would call a solar wax-extractor. If you try the experiment again in a window in a house or store, placing the honey, say, a few inches from the glass, and leave it there for several days, we think you will note on improvement in the cclor. —Ed.]

A LIGHT BREAKFAST OR NO BREAKFAST AT ALL.

Friend Root:—I want to shake hands with you on the light (or no) breakfast plan, and say that I am surprised that any one as old as you and I are (I am 55) have not found this out before; and I can also congratulate myself that I am not the only old crank. I used to eat the beefsteak (or heavy) breakfast too, and, like you, would get weak before dinner. About two years ago I commenced reading *Physical Culture*, and saw that we were eating too much, so I adopted the two-meal-per-day plan, eating no breakfast at all, and this proved to be one of your "happy surprises."

At that time I was working from 4 A. M. to 1 P. M.; so you see I did my whole day's work without eating, yet I suffered no inconvenience from it, and felt so much better in every way that I have kept it up. I have more endurance, and can do my work with much more ease, never get tired, and rarely feel hungry; yet I enjoy eating more than I have ever done since I was a boy. It is not only better for us, but it is more economical, and makes less work for the good wife.

Latonia, Ky. R. O. Denpree.

OUR HOMES,

BY A. I. ROOT.

By this shall all men know that ye are my disciples, if ye have love one to another.—JOHN 13 : 35.

This little church near our home in the woods is a continued surprise and joy to me. I look on in wonder and surprise to see it grow and prosper. I presume it is more of a joy to me because I have for five summers worked, watched, and prayed for it. Like the peach-trees in the clearing around our home I have seen it bud, blossom, and, just recently, *bear fruit*. May God be praised for the fruit. What particularly impresses me just now is the loving *harmony* among its members. They are a unit. If there is any self or selfishness among its members I have yet to see it. Each one seems to vie with his neighbor in not only showing a loving sympathy and interest in the affairs of his neighbor, but he is ever ready to lend a helping hand. It makes me think of the day of Pentecost; and I have just been reading with a new interest the last ten verses of the second chapter of Acts. In response to Bro. Shelly's earnest preaching they said, as the people said to Peter, "What shall we do?" When he told them, "they that gladly received his word were baptized." Then we are told, "They continued steadfastly in the apostles' doctrine and fellowship, and in the breaking of bread, and in prayers." And, again, "And all that believed were together and had all things common." Once more, "Praising God, and having favor with all the people." The above description is wonderfully like the Bingham church just now.

I have several times mentioned a young man who has worked for me more or less for the past four summers. I have often plead with Earl to "seek first the kingdom of God and his righteousness," but he didn't "see things" as I did. When he came to Sunday-school I tried to have him go up in the choir and help the singing, as he has quite a talent that way; but for some time past he continually refused, and all the other young men seemed to have dropped out of the choir. Well, since his conversion he never misses a meeting of any kind. He is first to march to the front in the singing, and in getting the other boys to go with him. His bashfulness and timidity are all gone. I look at him and wonder if it can be really the *same* Earl. No! it is not the same, for he has really and truly been "born again."

Last evening the meeting, for some reason, did not seem to start out as full of life and interest as usual. I, while on my knees, was conscious of half-heartedness and depression, and was praying against it. When we all rose to our seats Earl left his seat among the singers, came forward near the pulpit, and spoke something as follows:

"Dear friends, I am glad to tell you I am not only happy *to-night*, but my religion makes me happy *all day long*. I am afraid this is not the case with some of the rest of you, or this meeting would not drag as it does. It seems as if a lot of you were 'downhearted' about something. Tell us about it, and let us wake up. We are not living up to our privileges as followers of the Lord Jesus Christ."

I almost had to rub my eyes to be sure I wasn't dreaming. Could this indeed be *Earl* who was rebuking *me* and other old veterans for being lukewarm and faint-hearted? Some one then started the hymn, "Higher Ground," and we had a meeting full of life and faith after that.

Some of our readers may think I am making a great fuss over a commonplace revival in a little backwoods country church. We get mail here every day, and I take and read two daily papers, so I know pretty well what is going on outside. Let me give you a sketch from one of these dailies:

> Mr. W. R. Andrews of Grand Rapids, Mich., at a recent toast, got off the following appeal to the Filipinos:
>
> You Filipinos don't know what you are missing by not wanting to become citizens of this grand country of ours. There isn't any thing like it under the sun. You ought to send a delegation over to see us - the land of the free—land of fine churches and 46,000 licensed saloons; Bibles, forts, and guns, houses of prostitution; millionaires and paupers; theologians and thieves; liberalists and liars; politicians and poverty; Christians and chain gangs; schools and scalawags; trusts and tramps; money and misery; homes and hunger; virtue and vice; a land where you can get a good Bible for fifteen cents and a bad drink of whisky for five cents; where we have a man in Congress with three wives, and a lot in the penitentiary for having two wives; where we put a man in jail for not having the means of support, and on the rock pile for asking for a job of work; where we license bawdy houses, and fine men for preaching Christ on the street corners; where we have a Congress of 400 men who make laws, and a Supreme Court of nine men who set them aside; where good whisky makes bad men and bad men make good whisky; where newspapers are paid for suppressing the truth, and made rich for teaching a lie; where professors draw their convictions from the same place they do their salaries; where preachers are paid $25,000 a year to dodge the devil and tickle the ears of the wealthy; where business consists of getting hold of property in any way that won't land you in the penitentiary; where trusts "hold up" and poverty "holds down;" where men vote for what they do not want for fear they will not get what they do want by voting for it; where "niggers" can vote and women can't; where a girl who does wrong is made an outcast, and her male partner flourishes as a gentleman; where the political wirepuller has displaced the patriotic statesman; where we have prayers on the floor of our national capitol, and whisky in the cellar; where we spend $500 to bury a statesman who is rich, and $10 to put away a working-man who is poor; where to be virtuous is to be lonesome, to be honest is to be a crank; where we sit on the safety-valve of energy, and pull wide open the throttle of conscience; where we pay $15,000 for a dog, and fifteen cents a dozen to a poor woman for making shirts; where we teach the "untutored" Indian eternal life from the Bible, and kill him off with bad whisky; where we put a man in jail for stealing a loaf of bread, and in Congress for stealing a railroad; where the checkbook talks, sin walks in broad daylight, justice is asleep, crime runs amuck, corporations permeate our whole social and political fabric, and the devil laughs from every street corner.

The above may be somewhat of an exaggeration, but I think we all must agree there is at *least* a large amount of truth in it. What is the remedy? Dear friends, the remedy, and the *only* remedy, is getting the love of Jesus Christ into the hearts of the common every-day people of our nation; and this can be done by only just such revivals as I have been describing. Every one who is really born into the kingdom goes at once to work to win his neighbors.

I don't know so much about the "Congress of 400 men," but I do know of a House and Senate in our own State of Ohio whose united voices were swept aside by the veto of Gov. Herrick just because of the "Boss" and breweries that stood behind him.

There *may* be dogs valued at $15,000, and it isn't particularly my affair; but if there are women in our nation who are "making shirts" at "15 cts. a dozen" it ought to be the affair of every one of us. Can any one tell us if this is true?

Right near where I write there are schools and churches for the Indians of Northern Michigan, and may God be praised for it; but there is something else also near where I am writing. At Sutton's Bay, eight miles from here, the Leelanau fair was recently held. Mrs. Root was more interested in the Indian men, women, and children, than, perhaps, in any thing else at the fair; but in the afternoon there were drunken Indians reeling about on the grounds, and along the way between the fair and the town. Some could not walk at all, and I saw *two* intoxicated Indian women. Can some one tell me if there is not a law here in Michigan, as there is in California and Arizona, against selling intoxicants to Indians? A prominent business man in Sutton's Bay told me if he should undertake to enforce the law against the saloons, the rough element "runs things" to such an extent he would not be permitted to stay in the town. A bee-keeper who resides near there said to me, "Mr. Root, the saloons could not pay expenses if it were not for their trade with the Indians." There is an Indian village but a few miles away, and Mrs. Root said she thought almost a fourth of the people attending the fair were Indians. This State and our whole nation are laboring to educate and civilize these dusky friends, and I am sure their village with its Indian schools, churches, stores, etc., shows very commendable progress; but just think of permitting a few saloon-keepers (just for the sake of the little money they make) to tear down, and send to ruin, all our efforts to educate and build up this people! There is a Congregational church in Sutton's Bay, and a small band of Christian women are doing what they can to stem the tide. How long, O Lord, shall this thing continue?

On page 1035 of our last issue I gave the testimony of a middle-aged man who came forward one rainy evening. Within less than a week he was asked to lead the meeting; and he told us then that, as soon as he stood up in the anxious-seat, his mind kept running toward three friends of his, and he kept thinking they *too* must be persuaded to come, and they *did* come — all three. One of the three was Earl. Is it *possible* that any of these who are happy in the love of Christ could be guilty of any such work as mentioned in that newspaper clipping? *Surely not;* for "the blood of Christ cleanseth from all sin."

As an illustration of the way in which the love of Christ transforms and makes over the individual, I will, with your permission, mention an experience of my own. Mrs. Root was born in England, and came to this country when eight years of age. My ancestors were "Down-east Yankees." Both of us acquired from our parents certain peculiarities of dialect. As Mrs. Root was educated here she shows very little of the English in her speech; but after our marriage, when we both got real well acquainted, I suppose we were less careful about speaking strictly according to grammar and dictionary. At one period in my life (before my conversion), I am sorry to say I used to feel annoyed at her slight accent that only occasionally indicated she was not of American birth. I was well aware her speech was much more correct than my own, but at times I felt vexed that she could not learn to speak *exactly* like the "Yankees." I am sorry to be obliged to make this confession; but it well illustrates the attitude of the human heart when the love of Christ has not entered. Too many a *husband* has got into a way of thinking *himself* the center of the (home) universe, and that all should conform to his ways. Now note the contrast. *After* I learned that the Lord Jesus Christ is "Lord of creation," and not my poor self, I began to *love* these few quaint peculiarities that formerly vexed me. They are *now* to me an attraction, and I love the dear little woman all the more for them. Yes, I can honestly say I love all of her countrymen when their speech betrays their nationality; and I enjoy telling them *Mrs. Root* came from Queen Victoria's land. Our own America is now made up of a mixture of many nations, and God intended it should be so. It should make us more gentle to those from other shores. Not only should our "mother tongue" tell where we came from, but we of the fatherhood of God should be known of all nations *because* we have "love one to another."

The man who casts ridicule on one because he speaks another tongue, or speaks our language imperfectly, not only betrays to all men he is not a *Christian*, but at the same time betrays that he is not even a gentleman. When I tried in vain to make myself understood among the Spanish-speaking people in Cuba, I resolved again and again to be more careful hereafter to give all the help I could to any I should meet who do not speak *our* language.

Of course, members of the different clubs and secret societies have "love one to another," of their own people; but the gospel of Christ Jesus includes *all* people and all nations. The only password is, "All who love the Lord."

In regard to the different denominations, a very devout and earnest gray-headed German friend said to me a few days ago, "Brother Root, it makes very little difference what church we belong to. When we come before the great judgment-seat we may be very sure we shall not be asked the name of the denomination to which we belong."

HEALTH NOTES

BY A. I. ROOT

A. I. ROOT'S BATH-ROOM.

There is a good deal said about bath-rooms nowadays, and I am glad of it; but the most of them are expensive affairs, and within the reach of only well-to-do people. Another thing, it is usually quite a task for the good wife and mother to look after these expensive affairs and keep them neat and tidy. Of course, hired help may do it. Yes, they *may* do it, and, again, they may *not*—at least in such a way as Mrs. Root would want it done. Somehow I always dread clearing up after a bath. Here at the cabin, when it is cool I take my bath in a large tub, close by the kitchen stove; but in spite of many admonitions I almost always slop water over the floor, and I don't have water enough even then. When I take a sun bath and water bath, both together, out in the woods, as I have told you about, there is no clearing up; but it is a good way from the house, and, besides, some hunter or other individual going crosslots *might* come along and make it a little embarrassing.

Well, I have been so strongly impressed with the advantages of the combined sun-and-water bath, I recently devised the following scheme: If you turn to the picture of the cabin, page 658, June 15, you will notice the ground slopes to the south, just below the little low wood-shed. This ground is now covered with a heavy growth of soft June grass, making it a nice place to sit down on when you are tired. The rubber hose that brings the spring water up near the back doorstep is usually coiled up just at the foot of this grassy slope. To make a bath-room here, all I did was to get a strip of cloth, eight or ten yards long, and a full yard wide. Stout rings were sewed at each corner, and the apparatus was ready. Four stout nails were driven into the wood-shed to catch the rings, and two stakes a yard high and about two yards apart at the lower end. This makes an enclosure of cloth about 2×3 yards, giving plenty of room to sit down on the soft clean grass while you take your bath in the full blaze of the noonday sun, or, better still, at about two or three o'clock in the afternoon. Some nails in the wood-shed wall on the north side hold the clothing. If you take this sun-and-water bath two or three times a week, or every day, you will not need clean underwear every time, but your sweaty things can be hung in the sun, and get thoroughly aired and dried while you bathe. I am not sure you will need soap every time; and when you do use it, be sure you wash every bit of it off, for I for one find it an irritant to the skin if not removed thoroughly with plenty of water. No towel is needed, for you are to rub yourself dry in the sun; and when you are done, unhook the rings, roll up your long sheet, and that is all of it.* The grassy floor takes care of itself, for it just thrives on plenty of soap and water. A hose and running stream of water are, of course, desirable, but not absolutely necessary. As our iron pipes run a good deal on top of the ground in the sun, the water is plenty warm on almost any sunny day; and during this last week in September I have been having the nicest kind of baths. You want to commence "taking lessons" on some very warm day. Sit right in the sun, and commence with your feet. Get them sweet and clean with soap, then give them a big rubbing under a stream of water from the hose. If the water feels chilly, rub your limbs and body first with a wet hand. After a good rubbing with just the wet hands, run a small stream from the hose on the ankles, then knees, and so on up, over the whole body. Don't get childish, and say you "can't stand it." Let the body recover a little, then try again, and pretty soon you will agree with me that running water applied all over the body is just about the nicest thing in the world. Your whole body, in just a little time, will become immune to cold water, just like your hands, face, and feet, and it is the best preventive of "catching cold" of any thing ever invented.

How about cold weather, and, finally, winter time? Well, I haven't got to that part of it; but some glass sashes overhead, and perhaps in place of the cloth sheet, will take us along until well into winter, and a little greenhouse warmed with a cheap furnace or hot-water pipes might be quite a little cheaper than the "doctor bills" we often pay, to say nothing of trained nurses at "$4.00 a day, and board and lodging."

After such a bath, with rather cool water, you can stand a draft or a northwest wind in a way that is truly wonderful. God intended that we should have plenty of sun, air, and water, and we can not safely skip any one of them. The sun especially has been ignored and neglected, and it ought to strike right on the bare flesh of every part of our bodies once every few days; and the more of it, and the oftener, the better.

In regard to air, let a single ray of sunlight come into the average sleeping-room in the morning, and then look at the dust and trash that are floating all through it. Do you ever see the air around your bedside, when you sleep out under the trees in a hammock, like this? Surely not; and this is why consumptives are now sleeping outdoors almost all over the world. Now, unless you can make the air in your bedroom as free from dust as the air out of doors you are not doing every thing you can for health. By "practicing" just what I am "preaching" I can swing an ax hour after hour, and just enjoy the fun; but I have nothing over my arms and shoulders but a thin undershirt. If I get sweaty I slip on a coat when I stop and come in to read or write.

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* This sheet can, of course, be more than a yard wide; but if wider it cuts off more sun. While you are *seated* on the grass I find a yard in height gives privacy and cuts off the cool breeze.

Now, friends, see to it that I do not have all the fun there is in this "sunny" bathroom. I have described and demonstrated to the good wife that you can have a good bath and not leave a thing for her to be obliged to "pick up after you"—no, not even a *towel* to be washed.

DUFFY'S MALT WHISKY, ONCE MORE.

We take pleasure in calling attention to the following, which we clip from the latest issue of the *New Voice:*

> #### BLOW TO DUFFY FRAUD.
>
> The New York Supreme Court has finally decided that "Duffy's Pure Malt Whisky" is a whisky, and that its makers have no more right to evade the excise laws by selling it as a "medicine" than have the manufacturers of any other brand of liquor.
>
> In other words, Duffy's whisky can no more be sold without the payment of the saloon taxes than can any other whisky.
>
> An epidemic of prosecutions against business men who continue to sell this rotten speak-easy whisky would bring this arrogant nest of Rochester distillers to a realization that there is still a God in Israel.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. Reeves, Perch River, N. Y.

WANTED.—To exchange modern firearms for incubators and a Barnes cross-cut saw.
W. S. Ammon, 216-218 Court St., Reading, Pa.

WANTED.—To buy colonies of bees. State price and condition.
F. H. Farmer,
182 Friend St., Boston, Mass.

WANTED. Gasoline engine and a Barnes circular saw-table.
J. G. Pressler,
141 Armitage Ave., Chicago, Ill.

WANTED.—A good second-hand 12-inch foundation-mill in good order.
P. W. Stahlman, West Berne, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
Orel L. Hershiser,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes.
H. E. Crowther, No. Kingsville, Ohio.

WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey.
Chas. Koeppen, Fredericksburg, Va.

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Arnt Arneson, R. F. D. No. 5, Rice Lake, Wis.

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For Sale.—Full colonies of leather-colored Italian bees at $4.00 per colony.
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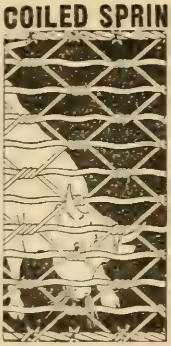

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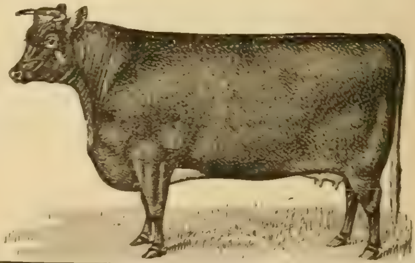

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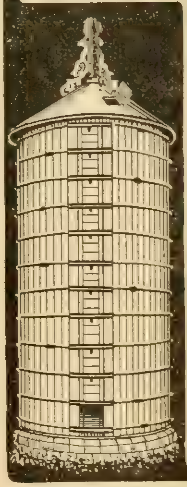

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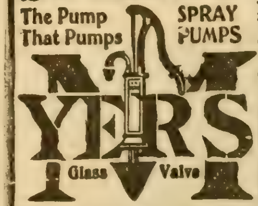

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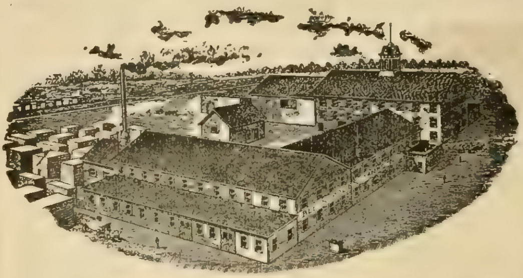

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such as shipping-cases with glass front, tin cans, buckets, glass jars with patent spring sealers and glass stoppers, regular glass fruit-jars, etc. Sample mailing-blocks for mailing samples of extracted honey. Special prices on glass honey-jars and tin buckets. ::: :::

NEW CROP OF EXTRACTED HONEY!

If you can't supply the demand in your locality, write to us at once and tell us how much you can use, and get our price by return mail. We have an abundance of the finest honey in the world; 10 cts. for sample by mail and the 10 cts. returned with your first order. :::

PAINTS FOR HOUSES, BARNS. ROOFS!

We quote low prices on all grades of paints, and especially on paint absolutely pure. Let us quote on paint for your house. ::: ::: ::: ::: :::

Best of service given all orders. Low freight rates. Write us to-day and tell what you want.

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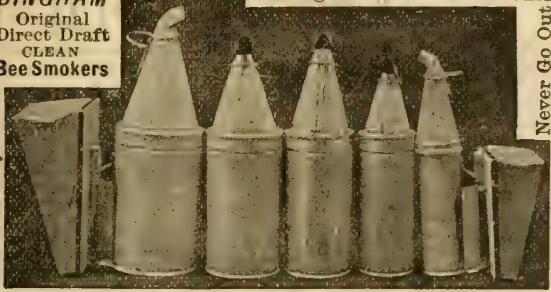
BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning



Pat'd 1878, '82, '92 & 1903

Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.

Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

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9 PER CENT DISCOUNT

on orders for

Lewis' Bee-supplies

accompanied by cash sent in

OCTOBER

This applies to all goods except honey-packages for current use. By return freight or express. Send to . . . . .

York Honey and Bee Supply Co.,

(Not Incorporated)

(Five short blocks north of the C. & N. W. Ry. Passenger Station, using the Wells Street Cable Line from center of city to Ontario St.)

141-143 Ontario St.,
Chicago, - Illinois,
H. M. Arnd, Mgr. Long Distance Phone, North 1559.

Catalog and prices on honey on application. If you want good goods at factory prices and prompt shipment, send your orders, or call on us.

BEESWAX WANTED!

26 cts. cash, or 28 cts. when taking bee-supplies in exchange — delivered here.

FOR SALE

HONEY-JARS

No. 25 honey-jar, porcelain cover, metal screw-cap, absolutely tight, holding one pound of honey net, in shipping-cases, one gross each.

1-gross lots	$4.50 per gross
5 " "	4.00 "

Also in Strong

Re-shipping Cases

of two dozen each, heavy corrugated partitions, sides, top, and bottom, a perfect protection. . .

1-case lots	$1.00 per case
5 "	.95 "
10 "	.90 "

Eight-ounce Tumblers

Tin caps, three dozen in re-shipping case

5-case lots.........	$ .85 per case
10 "	.80 "
20 "	.75 "

HILDRETH & SEGELKEN
82-84 Murray St., New York

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

12-ounce round jars, NICKEL CAPS, $3.75 per gross.
No. 25 jar, nickel or porcelain cap, $4.50 per gross.
1-pound square jars, with corks, $5.00 per gross.
Catalog free.

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

BEE-KEEPERS' SUPPLIES

QUEENS AND BEES

We allow early-order discounts.

64-page catalog free.

J. M. JENKINS, WETUMPKA, ALA.

"ESTABLISHED NEARLY TWENTY-FIVE YEARS"

LOWEST PRICES

BIG DISCOUNT - EARLY ORDERS

On cash orders before November 1....9 per cent
" " December 1....8 per cent
" " January 1......7 per cent
" " February 1 ...6 per cent
" " March 1 ....4 per cent
" " April 1 ....2 per cent

BEE-SUPPLIES

OF ALL KINDS

We have published *The American Bee-keeper* for 15 years (monthly, 50c a year); the largest and best illustrated magazine of its kind for the price published; edited by two of the most experienced bee-keepers in America. Sample copy free. Our large illustrated price list of supplies free on application. Address ::: ::: ::: :::

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Jamestown, New York

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NEW LONDON, WISCONSIN

Manufacturers of and Dealers in

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SUPPLIES

Send for Our FREE
New Illustrated Catalog and Price List

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Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

November 1......	9 per cent	February 1.......	6 per cent
December 1......	8 per cent	March 1	4 per cent
January 1........	7 per cent	April 1	2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL NOTICE

Special Notices

By Our Business Manager

HONEY-PACKAGES.

We have received from the factory during the past month another carload of Simplex honey-jars. This is a very attractive jar for holding one pound of honey. We furnish them packed in cases of 2 dozen each, with packing between the jars so they are safe to ship again when filled with honey, without additional packing. Price $1.10 per case; 6 cases, $6.30. We received in this car 30 barrels which, by mistake, were packed 14 dozen to the barrel instead of 12 dozen, as usual. We offer these at $6.30 per barrel; lots of 5 barrels or over, at $6.00. For use in the home market where you do not have to ship, this is a bargain.

HONEY-CANS.

We received the past month a carload of five-gallon honey-cans which we have packed in cases of one and two each. We have also a good supply of ¼, ½, and 1 gallon cans. To help reduce this stock we will apply the early-order discount on cash orders for tin cans, even though not ordered in connection with other supplies for next season. This is a special offer, limited in time, and you should mention it when you order. This discount applies to catalog prices, and not to the special price recently quoted on half-gallon cans. Our stock of half-gallon cans with small screws is all sold. We have in stock only those with 1½ or 1¾ inch screws.

Convention Notices.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention at the Revere House, corner of Clark and Michigan Sts., Chicago, during the fat-stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are Dec. 5, 6, and 7. Rates at the hotel are 75 cts. for a room alone, or 50 cts. each where two occupy the same room. Meals are extra, or they may be secured at nearby restaurants. The program is as follows:

FIRST DAY.

Evening session, 7:30.—"Wax-rendering Methods and Their Faults," O. L. Hershiser, Buffalo, N. Y.; "Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-keeper?" by Hildreth & Segelken, New York.

SECOND DAY.

Morning session, 9:30.—"How many Bees shall a Man Keep?" by E. D. Townsend, Remus, Mich.; "Short Cuts in Bee-keeping," by M. A. Gill, Longmont, Colo.; "Producing Comb Honey and Extracted Honey on the same Colony," by Jas. A. Green, Grand Junction, Colo.; question-box.

Afternoon session, 2:00.—"The Control of Increase," by L. Stachelhausen, Converse, Texas; "Migratory Bee-keeping," by R.F. Holtermann, Brantford, Can.; question-box.

Evening session, 7:30.—"Contagious Diseases among Bees, and how to Distinguish Them," by Dr. Wm. R. Howard, Ft. Worth, Texas; "Experimental Apiculture," by Dr. E. F. Phillips, Washington, D. C.

THIRD DAY.

Morning session, 9:30.—"The Honey-producers' League—Can it Help Bee-keepers?" by R. L. Taylor, Lapeer, Mich.; "The Business End of Bee-keeping," by N. E. France, Platteville, Wis.; question-box.

Afternoon session, 2:00.—"In what Way can Bee-keepers Secure Their Supplies at Lower Prices?" by W. H. Putnam, River Falls, Wis.; "How the Producer and Dealer may Advance their Mutual Interests," by Fred W. Muth, Cincinnati, Ohio; question-box.

Evening session, 7:30.—"What have We to Hope for from the Non-swarming Hive?" by L. A. Aspinwall, Jackson, Mich.; "Poultry-keeping for the Bee-keeper," by E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Sec.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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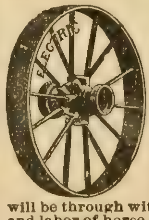

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will give you a new wagon and a lifetime's service out of your old running gears. They are the modern great service wheel. **Made to fit any wagon,** adapted to every duty. Straight or staggered oval steel spokes, broad tired, any height desired. You will be through with repairs and save money, fields and labor of horse and man. Write at once for our catalogue. It's free for the asking.

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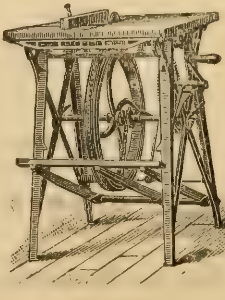
BOX 95 Quincy, Illinois.



BARNES'
HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives. sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO,
545 Ruby Street
ROCKFORD, ILLINOIS

FOUR per cent

WHEREVER YOU LIVE

BANKING BY MAIL

is within your reach. Only a stamp separates you from this bank. We pay four per cent interest on savings accounts, compounded twice a year. Write for particulars. . . .

The SAVINGS
DEPOSIT BANK COMPANY
Medina, Ohio

ASSETS OVER HALF MILLION DOLLARS

A. T. SPITZER, Pres.
A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier

AIKIN HONEY-BAGS.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5.50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.60	5000 @	10 00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8 75	1000	13.50
5000 @	8.25	5000 @	13.00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2.00; with ten different names, $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10,000 or over.

The A. I. Root Co. - Medina, Ohio.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

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During the next few months the bulk of GLEANINGS subscriptions will expire. Look at the date on your label and see if you are not one of them. If you are we want you to renew, so are making some very liberal offers by which you can advance your subscription without cost by doing a little work for us. Carefully read over the offers below. You surely have friends who ought to take GLEANINGS, and by obtaining their subscriptions you advance your own.

OFFER A.—We will advance your subscription to GLEANINGS three months free of charge for every trial subscriber you obtain for us at the rate of six months for 25 cents, new names only.

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OFFER C.—Send us $2.00 for two one-year's subscriptions to GLEANINGS and we will advance your subscription one year free of charge, providing that one of the two year's subscriptions is for a new subscriber; the other can be a new name or a renewal for yourself or a friend.

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OFFER E.—A copy of the 1905 edition, cloth-bound A B C of Bee Culture can be substituted for a year's subscription in Offers C and D, providing 20 cents extra is sent for postage.

THE A. I. ROOT CO.
Publishers
MEDINA, OHIO

YOUR LAST CHANCE

FOR THIS SEASON TO GET QUEENS OF QUIRIN-THE-QUEEN-BREEDER

Prices after July 1	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	.....
Straight five-band breeders	5 00	.....	.....

Requeen your bees now; do not put it off till too late. Quirin's bees begin work in sections the last of April. Remember it's the early bees that make the nice white box honey. Do not delay ordering, as the queen-rearing season will soon shut down. We guarantee safe delivery. Any queen not found satisfactory may be returned inside of sixty days and another will be sent in her place. Italian queens only.

ADDRESS ALL ORDERS TO

QUIRIN-THE-QUEEN-BREEDER, BELLEVUE, O.

PRICES OF QUEENS	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO, TEX.

HONEY QUEENS

Another car of bees offered for next season. Plenty of fine queens on hand at all times. Laws' Italian and Holy Land queens—the best bees on earth for business. Single queen, $1.00; six for $5.00. I can mail queens any month in the year. Eight-frame hive complete in the flat, 60c; 1½-story, 80c; full-depth supers, 26c; Hoffman frames, $15.00 per 1000. Hives made this winter only; but few orders will be accepted after March 1st.

W. H. LAWS, - - Beeville, Texas.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg, Va.

RED-CLOVER AND ITALIAN QUEENS

ROOT'S STRAIN, FOR SALE.
Untested, $1; Select Tested $1.50.

Charles A. Myers, Leipsic, Ohio.

LOTS OF GOOD QUEENS

Untested, $1.00 each; six for $5.00, or $9.00 per dozen. Tested, $1.50 each; select, $2.50. Bees for sale in car lots for spring delivery. Correspondence solicited. Agents for Dittmer's foundation for this State. Get prices.

THE BEE AND HONEY COMPANY,
WILL ATCHLEY, MGR. **BEEVILLE, BEE CO., TEX.**

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

How the Canadians Like

MOORE'S - STRAIN - OF - ITALIANS

J. L. Byer, Markham, Ont., Can., says: "I use a very large hive, and have been getting Italian stock from different breeders, and yours are the only Italians that fill up my big hives with rousing big colonies. They winter splendidly outdoors; are hustlers after honey, and not one queen has yet cast a swarm."

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.00 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed.
Descriptive circular free. :: ::

I am now filling orders by return mail, and shall probably be able to do so until the close of the season.

J. P. MOORE, MORGAN, PENDLETON CO., KY.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

The Best Stock

I still have on hand about a hundredyoung laying Italian queens that are very choice. To close them out quickly I offer them at 50 cts. each, or $5.00 per dozen. Satisfaction, or money refunded.

L. H. Robey, Worthington, W.Va.

Last Chance for Clover Queens

in 1905. Guaranteed to work red clover as well as white. Fine tested queens, $1.00; untested, 65c; doz. $7.

G. Routzahn, Biglerville, Pa.

Our Syracuse, N. Y., Branch

is prepared to ship promptly all
Bee-keepers' Supplies, giving
the same discount as Medina.

The A. I. Root Co., Syracuse, N. Y.
F. A. Salisbury, Manager.

Will Yours Be One of Them?

We will receive a good number of Orders in the next two weeks, and each one will receive a cash discount of NINE PER CENT. We ask again, will yours be one of them? It will mean money SAVED to you. And Root's goods, too. . . . . .

SOLD IN MICHIGAN BY

M. H. HUNT & SON, BELL BRANCH, MICH.

9 PER CENT
DISCOUNT
IN
::OCTOBER::

We have arranged the following discounts for early

CASH ORDERS

this season:

Before	November 1	9 per cent
"	December 1	8 "
"	January 1	7 "
"	February 1	6 "
"	March 1	4 "
"	April 1	2 "

DEALERS.—A partial list of dealers (wholesale and retail) in Root's goods will be found on the first inside cover page of this issue. A list of local dealers may be had by writing us at Medina. Save time and freight by ordering of the dealer nearest you.

These discounts are intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about ten per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books and papers, labels, and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog. ... ...

THE A. I. ROOT CO.
FACTORY AND EXECUTIVE OFFICE
MEDINA, OHIO
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Philadelphia—10 Vine St.
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Mechanic Falls, Me.
St. Paul—1024 Miss. St.
Washington, D. C.—1100 Maryland Ave.
Havana, Cuba—Obrapia 14.
Kingston, Jamaica—115 Water Lane.
Agencies everywhere—see the first inside cover page.

BEE-KEEPERS'
EARLY DISCOUNTS

Now is the time to send in your order for goods for use next season, and for all orders where cash accompanies we allow the following discounts: : : : :

Before November 1	deduct 9 per cent
Before December 1	deduct 8 per cent
Before January 1	deduct 7 per cent
Before February 1	deduct 6 per cent
Before March 1	deduct 4 per cent
Before April 1	deduct 2 per cent

Freight rates from Toledo are the lowest. Can take honey and beeswax in exchange for supplies if you desire. Send for free illustrated catalog. It describes and illustrates every thing for both poultry and bee keepers. . . .

GRIGGS BROTHERS
523 Monroe St., Toledo, O.

Dadant's
Foundation

It excels. We guarantee satisfaction. . . . .

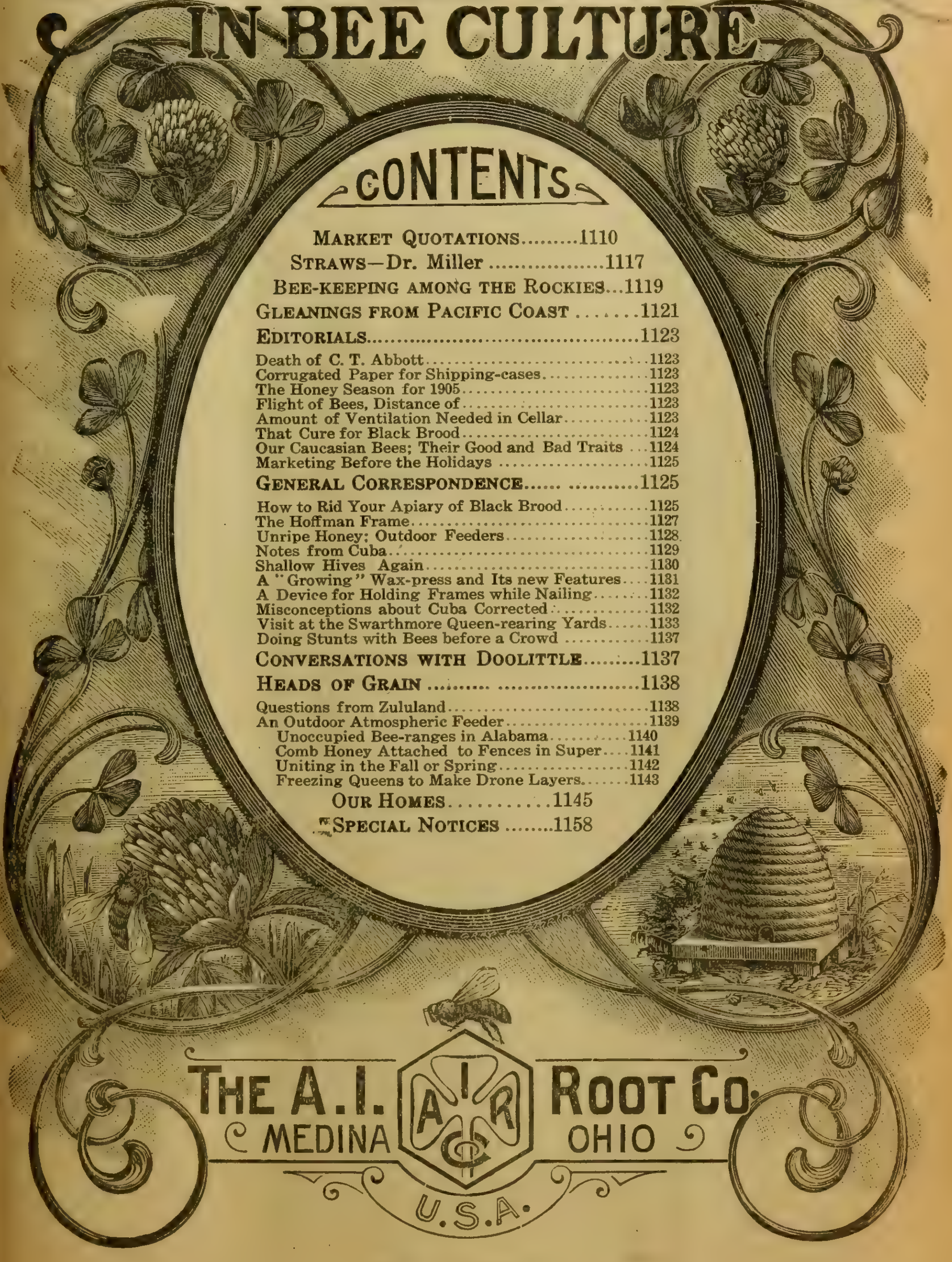
Bee-supplies
of All Kinds

BEESWAX WANTED AT ALL TIMES

DADANT & SONS, Hamilton, Ill.

Volume XXXIII NOVEMBER 1, 1905 Number 21

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Root's Bee-keepers' Supplies at Convenient Distributing Points.

Well-known Dealers.

The dealers, whose names follow, are well known to bee-keepers. They have been, for the most part, long established in the bee-supply trade, and have a knowledge of the business most valuable indeed to the bee-keeping fraternity. Their advice may be had on any question of supplies, etc., for the asking.

The Large Stocks.

Nowhere else is it possible to find such well-assorted stocks of goods for bee-keepers as are carried by dealers in Root's Goods. No matter whether you require a little five-cent article or a carload of goods, these dealers can serve you promptly. Stocks are frequently carried amounting to $5000 and upward.

Shipping Points.

You will observe that these dealers have excellent shipping facilities—guaranteeing you quick delivery and low freight rates.

Medina Prices.

The prices, terms, discounts, etc., are identical with the home office at Medina (with rare exceptions). Full particulars may be had before ordering, if desired, by writing the dealer nearest you. You can, however, use our Medina catalog and terms, and, if any variation, your dealer will advise you, if requested, before shipping.

Other Dealers.

Besides the following list, there are many others who handle some of Root's Goods. The following is by no means complete for hundreds of dealers come to us for many of the goods of which we are the exclusive manufacturers. *Insist on getting Root's Goods.*

Local Dealers.

In addition to the following list who carry large stocks, and furnish at both *wholesale* and *retail,* we have in every State a large number of local dealers who handle our goods exclusively. As there are over 500 of these dealers, space will not permit giving their names at this time; but information will be given by us, on request, to any bee-keeper regarding the dealer nearest him handling Root's Goods.

Canada--E. Grainger & Co., Toronto, Ont.

Colorado--Fruita Fruit & Produce Association, Fruita; The L. A. Watkins Mdse. Co., Denver, Colo.

District of Columbia--The A. I. Root Company, Washington, D. C.

Georgia--Howkins & Rush, 124 Liberty St., Savannah, Ga.

Indiana--Walter S. Pouder, Indianapolis, Ind. Vickery Bros., Evansville, Ind.

Iowa--Joseph Nysewander, Des Moines, Iowa.

Illinois--The A. I. Root Company, 144 E. Erie St., Chicago, Ill.

Kansas--Carl F. Buck, Augusta, Butler Co., Kan.

Mississippi--George A. Hummer, Brazelia, Miss.

Massachusetts--F. H. Farmer, 182 Friend St., Boston, Mass. W. W. Cary & Son, Lyonsville, Mass.

Maine--The A. I. Root Company, Mechanic Falls, Me.

Maryland--Rawlings Implement Co., Baltimore, Md.

Michigan--M. H. Hunt & Son, Bell Branch; George E. Hilton, Fremont, Mich.

Minnesota--The A. I. Root Company, 1024 Mississippi St., St. Paul, Minn.

Missouri--John Nebel & Son, High Hill, Mo. Springfield Seed Co., Springfield, Mo. Blanke & Hauk, St. Louis, Mo.

New Mexico--Edward Scoggin, Carlsbad.

New York--The A. I. Root Company, Syracuse, N. Y. The A. I. Root Company, 44 Vesey St., New York City, N. Y.

Ohio--McAdams Seed Company, Columbus Grove, O. Griggs Bros., 521 Monroe St., Toledo, O. C. H. W. Weber, 2146 Central Ave., Cincinnati, O.

Pennsylvania--Prothero & Arnold, Dubois, Pa. The A. I. Root Company, 10 Vine St., Philadelphia, Pa. E. E. Pressler, 633 Lycoming St., Williamsport, Pa.

Texas--Texas Seed & Floral Co., Dallas; Udo Toepperwein, San Antonio, Tex.

Virginia—W. E. Tribbett, Spottswood, Va.

The following buy our goods in carload lots but supplement them with local-made goods.

Alabama--J. M. Jenkins, Wetumpka, Ala.

California--Calif. Nat'l Honey-producers' Ass'n, Los Angeles; Madary Planing Mill, Fresno, Cal.

Oregon--Portland Seed Co., Portland, Ore.

Texas--D. M. Edwards, Uvalde, Tex.

The A. I. Root Company, : Medina, Ohio.

C. H. W. Weber,

Headquarters for

Bee-Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Complete stock for 1906 now on hand. Freight rates from Cincinnati are the lowest, especially for the South, as all freight now goes through Cincinnati. :: :: ::

8% DISCOUNT

For Cash Orders Received in

NOVEMBER.

This applies to all goods with exception of shipping-cases and other honey packages for current use. :: :: ::

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Cincinnati.—Reports from different parts of the country give evidence of an almost total failure in the comb-honey crop, excepting the points in the North. We are selling this Northern comb honey at 14@16, by the case. The demand for extracted honey is about equal to the receipts, which are good. We continue to sell amber in barrels at 5¼@6; white clover, 6½@7½. For beeswax we are paying 30c, delivered here. We wish to call the attention of the producer to the above quotations, who mistakably expects to receive these prices for his product. The above are our selling prices.

The Fred W. Muth Co.,
Oct. 17. 51 Walnut St., Cincinnati, Ohio.

New York.—Comb honey is now arriving very freely, and the demand is good for nearly all grades. We quote fancy white 13@14; No. 1, 11@12; amber, 10@11; buckwheat, 10. Extracted in good demand. Arrivals of California are large, while from other sources the receipts are very light. We quote California at 5½@7, according to quality and quantity; Southern, in barrels and half-barrels, 55@60 per gallon. Beeswax, firm and scarce at 29@30.

Hildreth & Segelken,
Oct. 20. 265-7 Greenwich St., New York.

Denver.—The demand for new comb honey is fair, and prices range as follows: No 1 white comb, per case of 24 sections, $3.00@$3.25; No. 2, $2.75. Extracted white, 7@7½; light amber, 6¾@7. For clean yellow beeswax we pay 24c, delivered here.

Colorado Honey producers' Ass'n,
Oct. 21. 1440 Market St., Denver, Colo.

Philadelphia.—Honey has been arriving quite freely in the last ten days. There are still some smaller producers who have a few hundred pounds, and want to dispose of it quickly and get their money, who are keeping the prices down. We quote as follows: Fancy white comb, 14@16; No. 1, 13@14; amber, 10@11. Extracted honey rules firm at 5½@6½ for amber; white, 6½@7½. Beeswax firm at 28. We are producers of comb honey, and do not handle on commission.

Wm. A. Selser,
Oct. 19. 10 Vine St., Philadelphia, Pa.

Cincinnati.—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep the prices high. We quote as follows: Fancy water-white and No. 1 clover, 14@16; No. 2, 12½@14 Extracted seems to be more plentiful, and we quote same in barrels, light amber, 5¼@5½; in cans, ½c more; white clover, 7@8. Beeswax, 28@30.

C. H. W. Weber,
Oct. 24. 2146-8 Central Ave., Cincinnati, O.

Toledo.—The honey market remains firm, with good demand, and prices the same as last quotations. Fancy white comb brings 15; No 1, 14; fancy amber, 13; buckwheat, 13. Extracted white clover, in barrels, 6¼@6½; amber, in barrels, 5@5¼; in cans, 1c to 1½c higher. Beeswax in good demand at 26c cash; in trade, 28c.

Oct. 17. Griggs Brothers, Toledo, Ohio.

Schenectady.—The warm weather of the past few days has had a tendency to lessen the demand for honey, and we note a tendency on the part of producers also to urge sales, which gives the market a weak tone; but with more favorable weather we expect to see it recover. We quote fancy white, 14@15; No. 1, 13@14; Mixed and buckwheat, 12@12½. Extracted, light, 7@8; dark, 6@6½.

Chas. McCulloch,
Oct. 18. Schenectady, N. Y.

Buffalo.—Demand for honey is improving. Can not get any higher prices than we have been getting. There seems to be plenty of honey offered to supply the demand at the present prices. Fancy white comb, 13@14: A No. 1, 13@13½; No. 1, 12½@13; No. 2, 11@12; No. 3. 10@11; No. 1 buckwheat, 11@12; No. 2 buckwheat, 9@10. Extracted, white, 6@7; dark, 5½@6. Beeswax, 28@30.

W. C. Townsend,
Oct. 27. Buffalo, N. Y.

St. Louis.—Our honey market is firm on all grades. The supply is very small, especially for choice comb honey, with an increasing demand. We are quoting as follows: Southern amber, in barrels, 5¼@5½; in cans, 5¾@6; California white and light amber, in five-gallon cans, 6½@7. Comb honey, white, 13@14; A No. 1, 12@13; No. 1, 10@11. Beeswax, 28 for prime.

R. Hartmann & Co.,
Oct. 19. 14 So. Second St., St. Louis, Mo.

Atlanta.—The honey conditions are easy here, with light receipts and small sales. We quote you as follows: Fancy white, 12@13; A No. 1, 11@12; No. 1, 10@11. No demand for extracted.

Judson Heard & Co.,
Oct. 20. 110 So. Forsyth St., Atlanta, Ga.

Chicago.—The market is steady, with fancy white comb selling at 14@15; other grades of it at 1c to 3c less; amber grades, 10@12. Extracted white, 6@7, amber, 5½@6½, according to quality, flavor, and package. Beeswax, 30.

R. A. Burnett & Co.,
Oct. 18. 199 South Water St., Chicago, Ill.

Kansas City.—The market on comb honey remains firm at $3 25 per case, and the demand is good. This is for strictly No. 1 white stock put up in 24-section cases. Extracted is moving well at 5@7, according to quality and kind. No demand for beeswax; some selling at 26.

C. C. Clemons & Co.,
Oct. 18. Kansas City, Mo.

Fancy White Extracted Honey

Crates of two 60-lb. cans, 8c; two or more crates, 7 1-4 cts. For larger lots write for special prices. All f. o. b. Cincinnati. Cash with order. Samples, 10 cts. to pay postage.

THE FRED W. MUTH CO.
51 WALNUT STREET, CINCINNATI, OHIO
SEND FOR CATALOG OF BEE-SUPPLIES WITH SPECIAL DISCOUNT

For Sale.—Extracted honey at 6 to 8½ cts.; sample, 10 cts. I. J. Stringham, 105 Park Place, New York.

For Sale.—Clover and buckwheat honey, in 60-lb. cans; sample free. Jas. McNeill, Hudson, N. Y.

For Sale.—2000 lbs. choice buckwheat honey in new 60-lb. cans, at 5c. Clover honey all sold.
G. A. Bleech, Jerome, Mich.

For Sale.—2000 lbs. buckwheat extracted honey, in barrels and 60-lb. cans, at 6c. f. o. b. Sample free.
E. D. Townsend, Remus, Mich.

For Sale.—43,000 lbs. of choice extracted buckwheat honey at 6¼ cts. put up in kegs holding about 160 lbs. each. E. W. Alexander & Son, Delanson, N. Y.

For Sale.—Clover or buckwheat honey, comb or extracted, in large or small lots. Write for price, and quantity desired. C. B. Howard, Romulus, N. Y.

For Sale.—Buckwheat honey, in 60-lb. cans, at 6 cts.; buckwheat comb at 12 cts. C. J. Baldridge,
Homestead Farm, Kendaia, Seneca Co., N. Y.

For Sale.—Eight thousand pounds of fine table-grade extracted alfalfa honey at 6 cts. per pound, f. o. b. here. J. T. Hammersmark, Reno, Nev.

For Sale.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts for clover and 6 cts. for buckwheat.
G. H. Adams, Mill St., Bellevue, Schenectady, N. Y.

For Sale.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. Hershiser, 301 Huntington Av., Buffalo, N. Y.

For Sale.—A No. 1 white comb at 15 cts.; No. 1, 14 cts.; No. 2, 13 cts.; amber and buckwheat, 12 cts. Above honey is in glass-front cases, 24 sections to the case. Extracted clover, 6 cts.; amber, 7½ cts.; in new 60-lb. cans. Quirin-the-Queen-Breeder, Bellevue, O.

For Sale.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
Hildreth & Segelken, 82 Murray St., N. Y. City.

Wanted.—White-clover comb and extracted honey.
B. Walker, Clyde, Ill.

Wanted.—Quotations on about two tons of clover and buckwheat comb honey; must be fancy, both in quality and appearance. H. W. Denio, Westfield, Mass.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up.
Chas. Koeppen, Fredericksburg Va.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St. New York.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

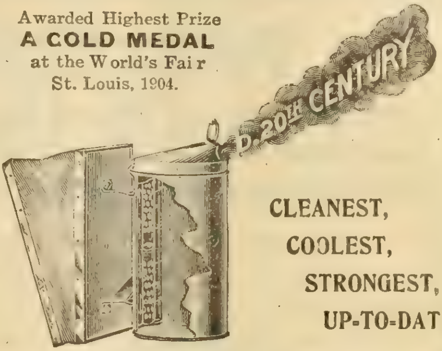
Wanted.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. Griggs Bros., Toledo, Ohio.

Wanted.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
Evans & Turner, Columbus, Ohio.

Wanted.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
Thos. C. Stanley & Son,
Manzanola, Colo., and Fairfield, Ill.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

F DANZENBAKER, - MEDINA, OHIO.

$300,000,000 in Poultry

Do you know that the government census of 1900 gives the value of the poultry in that year at very nearly $300,000,000?

POULTRY SUCCESS, the Twentieth-Century Poultry Magazine, is absolutely indispensable to every one interested in chickens, whether they be beginners, experienced poultry-raisers, or keep only a few hens. It is without question the foremost poultry monthly in this country, and readers of its articles on pure-bred chicks and their better care and keeping have come to realize that it is plain truth that there's "money in a hen." Poultry Success has from 36 to 112 pages every issue; is beautifully illustrated and printed; has best writers; 16 years old; shows how to succeed with poultry.

Regular Subscription Price, 50 Cents per year.

Special Offers.—If you keep chickens or are in any way interested in them, we will send Poultry Success to you for one year for introduction, and mail free also a large illustrated practical poultry book for only the regular price, 50 cents; or three months' trial, only 10 cents. Sample copy free. Address to-day,

Poultry Success Co., Dept. 24, Springfield, Ohio.

Wanted.—Comb honey; Michigan preferred.
W. D. Soper, Jackson, Mich.

Wanted.—We are in the market for buckwheat honey, both comb and extracted. When writing be sure to tell how it is put up, mentioning the grade; if comb, No. 1 or fancy; and send sample if it is extracted. We do not want it mixed with other flavors.
The A. I. Root Co., Medina, Ohio.

Wanted.—Beeswax. We are paying 26 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
The A. I. Root Company, Medina, Ohio.

MAGAZINE COMBINATIONS

Subscriptions may be sent to one or different addresses. We make a specialty of quoting prices on your own combinations. We will meet or beat the price of any agency or publisher. FREE: Send us any three clubs at advertised prices and we will give you any magazine of Class A free. Catalog Free. Agents wanted.

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Agricultural Epitomist (three years)	$ 50
American Farmer	50
Beauty and Health	50
Boys and Girls	50
Book-keepers' Bulletin	50
Cooking Club	50
Church Woman's Magazine	1 00
Farm News	50
Farmers' Institute Bulletin	50
Farm and Fireside	50
Farm and Home	50
Farm Magazine	50
Fruit Grower (until Jan. 1)	50
Green's Fruit Grower	50
Housekeeper	60
Home Magazine	35
Ladies' World	50
McCall's and pattern	50
Poultry Success	50
Western Review	50
World's Events	1 00
Woman's Work	1 00
The Woman's Journal	50

CLASS A

American Boy	1 00
American Thresherman (after Jan. 1)	1 00
American Inventor	1 00
American Education	1 00
American Nut Journal	1 00
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American Dressmaker	1 00
At Home (Kentuckian)	1 00
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* Commoner	1 00
Church Economist	1 00
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Magazine of Mysteries	1 00
Madame	1 00
Merchants' Guide (new)	2 00
National Daily Review (the woman's daily)	1 00
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New Thought	1 00
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Pearson's	1 00
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Pilgrim	1 00
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Talent	1 00
Town and Country Journal	1 00
* Woman's Home Companion	1 00
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Youth	1 00

* Add ten cents to club for this magazine.

CLASS B

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Burr McIntosh	3 00
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Journal of Education	2 50
Lippincott's	2 50
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GLEANINGS IN BEE CULTURE—

With any one of Class 1	1 25
" two " 1	1 50
" three " 1	1 75
" one " A	1 50
" two " A	2 00
" one of Class 1 and one of Class A	1 75
" two of Class 1 and one of Class A	2 00
" one of Class 1 and two of Class A	2 25
" one of Class A and one of Class B	3 00
" two of Class B	4 00

Gleanings in Bee Culture	$1 00	**Our Price, $2**
Motor Way	2 00	

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With American Inventor	1 50
" Madame	1 50
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" National Daily Review	1 50
" McCall's and pattern	1 25
" Lippincott's	2 50
" Burr McIntosh and one of Class A	3 00
" Booklovers and two of Class 1	3 00
" Talent	1 50
" Keith's on Home Building	2 00
" Searchlight	2 00
" Review of Reviews and Cosmopolitan	2 50
" American Magazine (Leslie's) 14 months, commencing with November; Suburban Life, and Pearson (Harper's Bazar or World To-day in place of Pearson.)	2 50
" Review of Reviews and Woman's Home Companion	2 50
" Review of Reviews, Cosmopolitan, and Scribner's	5 50

Our References: F. and M. Bank, Bath, New York. Address

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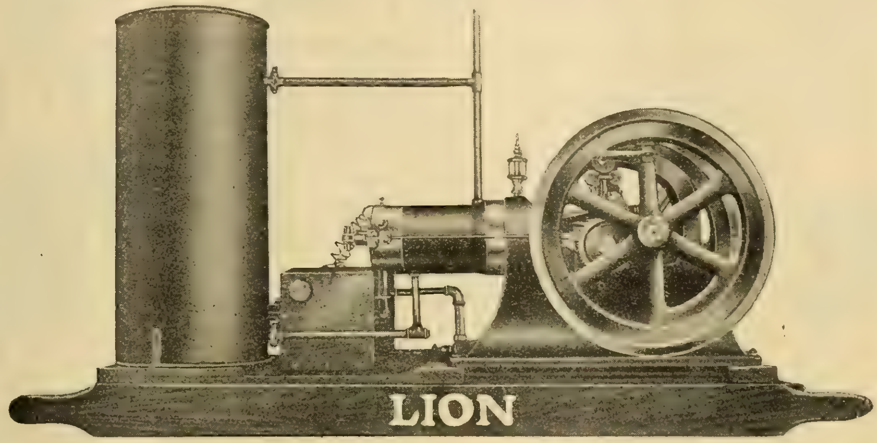
138 HOWELL STREET, BATH, NEW YORK

MONARCH OF THEM ALL

The "LION"

Gas and Gasoline Engines

Sold Direct from Factory to User



Acting on the theory that "testing is proving," we will send any responsible person, on certain very easy conditions, one of our three-horse-power gas or gasoline engines on 10 days' test trial.

This engine is no experiment, but has been proved by actual use to do any work (where the rated amount of power is required) in the most practical, reliable, safe, and economical way.

This engine is of the four-cycle type. While the engine is up to the normal speed the exhaust valve is held open, allowing free circulation of fresh air in the cylinder. The igniter and intake valve are at rest, therefore not using gasoline or batteries.

Our igniter and mixer are of the most simple and reliable character. The gasoline is always properly vaporized and the igniter point never comes together unless a spark is required.

These are points of Economy Very Important to the User

The fly-ball type of governor is used, which automatically controls the exhaust, igniter, and gasoline, also allows the speed to be changed from 100 to 600 revolutions per minute while the engine is in motion—a very superior feature.

Lion Gas and Gasoline Engines are Simplicity Simplified

They are used for all purposes where power is required—private electric-lighting plants, small factories, printing-offices; farm machinery, such as cream-separators, feed-grinders, corn-shellers, wood-sawing machines, bee-hive making, power honey-extractors, and a thousand and one other purposes that can not be mentioned here.

Write Us a Letter Like This

Lyons Engine Company, Lyons, Mich.
Gentlemen:—I am about to purchase a gas or gasoline engine for........................
purposes, and wish you to send me full particulars about your approval offer as advertised in "Gleanings in Bee Culture." Yours very truly, Name..........................
State .... Town..
R. F. D.................................... Street No. or P. O. Box.................

When writing please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

Please remember we send the engine, not the engine agent.

LYONS ENGINE CO., LYONS, MICH.

65 Lessons
IN BEE-CULTURE
For $1.00

As most readers of Gleanings know, Bee-Culture is a most fascinating and interesting study: Bee-Keeping a pleasant and profitable occupation. In the Lessons, one of which is sent each week, we give you a practical education in bee-culture. If you are not now a regular reader, send ONE DOLLAR for a year's subscription to The American Bee Journal, the oldest bee-paper published in America, and the paper will be sent to you for the balance of this year and all of 1906. Each issue of the Journal is one of the Lessons in this series, and contains articles by the most successful bee-keepers in the world. Every page is full of helpful hints and wise counsel — a real education for amateur and adept.

THE AMERICAN BEE JOURNAL

is not only the oldest bee-paper in America but it is one of the best published. It is constantly being improved and made better. The aim and ambition of its publishers is to make it so good that no bee-keeper who expects to succeed will want to be without it. They propose doing this by making it worth many times its cost to subscribers. 52 issues for $1.00 brings it within the reach of all. Some subscribers have said that one issue has proven to be worth a year's cost to them.

The character and quality of the contents of the American Bee Journal are keynotes to its success and usefulness, and a guide to what its future will be. Its many departments, each conducted by practical writers of national repute, cover every phase of the bee-business. Each issue of the Journal is helpful at the particular time it is published — touching on timely topics, solving the problems and perplexities of the hour.

The Editor is assisted by a corps of able correspondents whose writings are especially interesting and beneficial to every bee-keeper in the land. "Convention Proceedings" are often reported almost verbatim, so that the reader may stay at home and yet enjoy the conventions wherever held. "Our Bee-Keeping Sisters" department is particularly interesting to the gentler sex. Many of them are contributors who always have something to say worth reading.

"Hasty's Afterthoughts" and "Dr. Miller's Question-Box" alone are worth many times the $1 charged for the Journal, while the department, "Reports and Experiences," is so full of news notes that the bee-keeper reading each issue keeps posted on the doings of the whole bee world. "Market Quotations" gives the conditions of the prominent markets. "Miscellaneous News Items" covers various subjects and is always interesting.

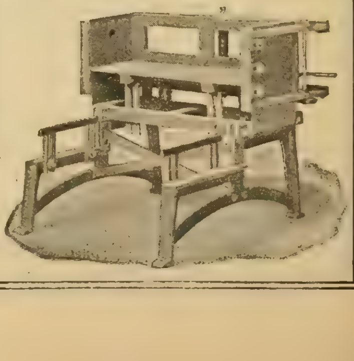
If you keep bees, you simply can't afford to miss a single issue of the American Bee Journal. Send $1.00 by return mail and get not only the 52 Lessons in 1906 but the balance of this year FREE, if you are a new subscriber. Or, send 20 cents and get the last 13 Lessons of 1905 as a "Trial Trip." Address,

George W. York & Co., 334 Dearborn Street, Chicago, Ill.

These Blocks

were made on one of our $50 concrete building-block machines. Prices range from $50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement makes from 25 to 35 blocks. Write for descriptive circular and list.

Medina Concrete Company
Medina, Ohio



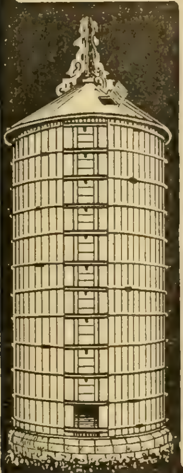
A SPECIAL OFFER

The BEE-KEEPERS' REVIEW is now making an unusually attractive offer to new subscribers. Send ten cents for three late but different issues and this may apply on any subscription sent in during the year. With the three numbers will be sent a special offer to new subscribers; also a description of the new and greatly enlarged edition of "Advanced Bee Culture," which will be out soon, and a specially low clubbing price will be offered to those who order it *now* in connection with the REVIEW.

W. Z. Hutchinson, Flint, Mich.

THIS SILO

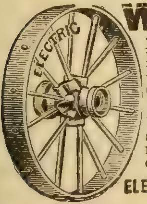
$92.40



Every stock and dairy farmer needs a Silo. Our Silos are made by expert silo builders, with extraordinary care, from best of materials, and will keep silage in good shape for feeding—in fact, there is no better silo made at any price. Made in sizes to suit. We save the farmer two profits and give him best silo built.

> We also have a plan to sell this silo, and all kinds of merchandise, to the farmer at 10 per cent less than list prices—and save him from $150 to $200 a year. Write for full particulars about it.

Write for special Silo catalog. Don't buy until you get it. **CO-OPERATIVE SOCIETY OF THE NATIONAL SUPPLY CO., LANSING, MICHIGAN; CHICAGO, ILL.**



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Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

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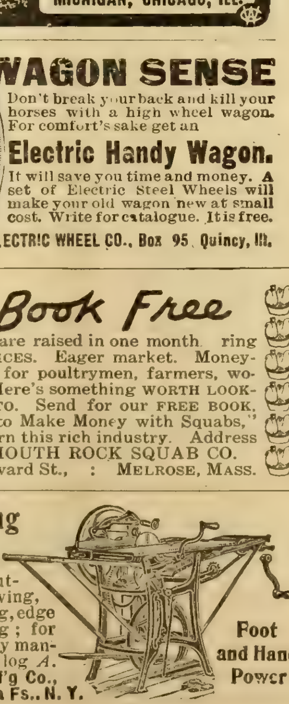

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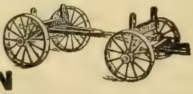

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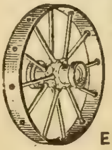

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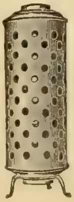

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

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Stray Straws

By Dr. C. C. MILLER.

F. GREINER, in *American Bee Journal*, prefers sulphur to bisulphide of carbon, because the bisulphide costs 35 cts. a pound. He burns the sulphur *over* the combs. He uses 1½ oz. of sulphur for 10 supers of 24 sections each.

A QUESTION, page 1086, suggests that it is time again to say that colonies are not likely to have "a fertile worker or two," but that quite a number of them are found at the disreputable business; and Mr. Griggs may be assured that, even if there was only one laying worker in a colony it would not accept a queen without balling—nor with balling, either.

YOUNG BEES (not young brood, as the heading has it) attached firmly to the bottom of the cell, page 1084. Dr. Brown's description tallies exactly with the cases mentioned in a Straw, page 1062, and I suspect that the same miscreant, that little worm, was the culprit in each case. [I have never seen this little worm, and should be very glad to have specimens by mail in a little box from any of our subscribers so that we may have them sent to an entomologist for identfication and life history. The little worm spoken of was, no doubt, responsible for the injured young bees spoken of in GLEANINGS. Was it not, doctor, some species of wax-worm?—ED.]

CONFLICTING TESTIMONY as to Caucasian bees may possibly not be so very conflicting after all. If they are never so gentle, and yet only mediocre as storers, they will be no acquisition for those whose main object is a crop of honey; but if more gentle than any others they will be a great acquisition for those who, like Dr. Lyon, do not care so much for the commercial side of bee-keeping. I'd rather have bees that would give me a lot of stings more than any others if they would also give me a lot more honey than any others; but if I kept only a few colonies just for the fun of it, I'd rather have bees that wouldn't sting, even if they gave only half a crop. How are the Caucasians as honey-gatherers, anyhow? [See editorials for a statement of our Caucasian bees.—ED.]

GOOD JOKE on ye editor, who says, page 1067, that Miss Dittmer, who has just been married, created a very favorable impression at the Northwestern, in Chicago. Say, Ernest, whisper; that was Miss Dittmer's *mother* you met there. But I don't blame you for being favorably impressed, even if you did think she was a young damsel instead of a woman with a marriageable daughter. [I discovered the "joke" before the last issue got off the press, but it was too late to correct it then. As a matter of fact, I met Miss Dittmer at the Minneapolis convention with her brother. Yes, I was very favorably impressed with *all* the Dittmers. I wish there were more like them in this world.—ED.]

WHEN HAULING bees from outyards without closing entrances, you say, Mr. Editor, p. 1071, you will have the king-bolt so it can be easily withdrawn. You don't mean "king-bolt," do you? and I don't know what is the right name of the bolt that holds the doubletree. But, even if freed from the wagon, there would be danger of a bad runaway with some horses if a pair of singletrees and a doubletree were clattering at their heels. Couldn't some way be devised to unhitch the tugs instantly? Another good way for safety is to close all entrances bee-tight. Guess I'll stick to that. [I accept the correction on the king-bolt. At all events, it is a bolt that releases the doubletree. No danger of a bad runaway if the driver does as our teamster does. I have seen him, time and again, jump down off the wagon, pull out the doubletree bolt, as we will call it, grab the doubletree with one hand, and drive the team away with the other. As the team moves forward he pulls on the doubletree, keeping the whiffletrees and all off the heels of the horses. One can move off at a good smart walk. It would be practically impossible to release a team by unhooking the tugs if the horses got to throwing themselves.—ED.]

DOVETAILED HIVES have now been in use long enough so that the question might now be, not as to how they *will* last, but as to how they *have* lasted as compared with square joints or lap joints. I've had the dovetailed corners ever since any were made, and they stay in place decidedly better than any other, and as yet show no sign of rotting, and that without paint. [Yes, you will remember I made the remark that, since you persisted in not painting your hives (when I had always advocated it) we would have a chance to observe how well the lock cornering would stand without paint. This was ten or twelve years ago, and I believe this is the first report we have had from you. I am not surprised, however, because I have seen other lock-cornered hives all over the country, without paint, that were still strong and good at the corners, while the lap-cornered hives of the same age were a good deal worse for the weather. All'e same'e, I advocate paint, for the looks of the thing if nothing more.—ED.]

PILING HIVES in cellar, as illustrated on p. 1014, has the objection mentioned, p. 1061, that, when one colony stirs up, the disturbance may be communicated to the whole pile. You reply, Mr. Editor, "You are correct; but if room is limited, what are you going to do? To put the hives on shelving . . . would be expensive, and wasteful of room." Well, I will tell you what you can do that will be no more expensive and wasteful of room than the page-1014 plan, and leave the colonies just as much isolated as on shelves. Pile the hives four or five high, one hive straight on top of another, each pile detached from every other pile. That's the practice "in this locality." [Our hives are piled up in the cellar with their bottom-boards, said boards having good wide entrances. Your plan of piling one hive squarely on top of another is all right; but many bee-keepers have hives with narrow entrances and detachable bottom-boards. The hives are lifted off the stands, carried into the cellar, lifted off the bottom-board, and then piled just over the space between two other hives below. Of course, your plan could be carried out even then by putting four blocks between the cover of the lower hive and the hive just above without bottom.—ED.]

YE EDITOR asks, p. 1061, whether jolting bees off a comb by holding one end of the top-bar and striking the other end on the ground would not have a tendency to make the frame a little out of square. One would certainly think so before trying it. The practice was begun here perhaps two or three years ago, first on very light combs, with no thought that it would do with heavy frames at all. Gradually, as no harm came from the practice, heavier and heavier combs were thus jarred, until combs that were entirely filled with honey, and sealed, were jarred, and very careful watching has never shown any jarring out of square. It jars the bees off more quickly and more perfectly than any amount of shaking, whether the combs are light or very heavy. One reason, perhaps, that no harm is done is this: When you take hold of one end of the top-bar and attempt to strike the other end of the same bar on the ground, you naturally swing the comb out from you, letting the force come upon the comb diagonally, the top-bar not standing perpendicular, but at an angle. If you try it I think you will like it. [I shall be glad to try the trick at the next opportunity. No doubt you are right, that the damage in practice is nothing like what it is in theory.—ED.]

A MUDDLE appears to have occurred, page 1006. I said, Mr. Editor, that I was dazed at your saying, page 964, that but for being easily clogged you would prefer a winter entrance only one inch wide and ¼ high. Referring now to page 964 I find you said "4 in. wide and ¼ deep"—just four times as much. Small matter how the muddle came, but it is important to know what's right. As that small entrance passed unchallenged, page 1006, please tell us what is right, especially as the *American Bee Journal* quotes GLEANINGS as giving a still different entrance, 6×¼. [No muddle at all, doctor, unless *you* are muddled. While I advocated an entrance ¼ high and 4 inches wide, you will note that I stated I preferred one an inch wide and ¼ high *providing* that such an entrance would not clog up with dead bees. But as such an entrance would clog, undoubtedly a larger one would have to be used in practice. If you will look back to the references I think the whole thing will straighten itself out. The difference between 6×¼ and 4×¼ inches would be very small. I may have recommended the six-inch width in one place and the four-inch in another. For a strong colony I should prefer the six-inch width; for one of medium strength a four-inch width, and for one that is weak a two-inch. But, mind you, this is for outdoors only. For the cellar, the larger I could have an entrance the better I should like it.—ED.]

"MR. NEWELL has presented in a nutshell the best arguments I have seen yet against selling honey by the piece." So the editor, p. 1089; and then he proceeds to give in a nut-shell the best arguments I have yet seen on the other side of the question. But! There are still some things that might be said. It is very true that the trend is toward selling things in ready packages without weighing. But please note that in nearly all such cases the packages are of such things as can be made, and are made, of uniform weight. You don't buy a chicken, a beefsteak, nor a slice of cheese by the piece, generally. Eggs are sold by the dozen. Isn't that a relic of by-gone days, when eggs were more uniform in weight than now?

You say, Mr. Editor, "no one would think of buying eggs by the pound." Beg pardon, that very thing has been thought about and talked about; and, if I am not mistaken, eggs are sold by the pound in some places. Please note that, while the trend is toward having things in ready packages, that's only another form of saying that they are *ready weighed*, and equally the trend is toward having things sold by actual weight. When I was a boy I never heard of wheat being sold by weight; you, Mr. Editor, very likely never knew of its being sold any other way; same with corn, oats, and other grain; and potatoes, squashes, and a whole lot of other things are coming into the same list. You say, "one can go into a grocery and get pretty nearly a whole lay-out without using the scales once." Now, what kind of talk is that? Haven't the scales been used in making up those ready-weighed packages? You say, "Many grocers will not handle honey, and why? Because we bee-keepers have not catered enough to the custom that now prevails, of regular size and regular packages at even change." My! my! Haven't we? Will you please name five things that we have not done in that direction? Well, just one, then? See here, my good friend and fellow-citizen, you might as well say that grocers will not handle dressed poultry because poultry-raisers "have not catered enough," etc. Do you think any poultry-raiser has ever tried as hard to have a lot of chickens of exactly the same weight as we bee-keepers have tried to have sections of the same weight? And still there are some other things to be said. They'll keep. [When you mention chickens, beefsteak, and the like, you refer to things that are seldom sold at groceries, but at meat markets. The citation of a chicken that is of more value, and which is to be sold at a place where nearly every thing must be sold by weight, is hardly a parallel case. It would be impossible to sell meat by the chunk, and chickens by the piece. What I was talking about was the grocery, where honey is sold and where the tendency is to sell nearly every thing in packages. Cheese is the only article that has to be sold by weight that I can now recall. Practically all other food stuffs are being sold more and more in packages. Even butter is being sold by the brick.

What I meant by saying that bee-keepers had not catered enough to the demands of the grocer was that they have been in the habit of putting heavy and light-weight sections in the same case, all mixed together. This makes it necessary for the grocer to sell by weight. The customer can not tell, neither can the grocer, how much the honey will be until it is weighed. But take to that same grocer a case of sections, each of which will be almost exactly the same weight, so that he can sell them by the piece, and see if he does not ask you to bring more of your honey to him in the same way. If you put your light weights in one case, your medium in another, and your strictly fancy in another still, so that he can sell out of each case by the piece, you will please him and his customers too.

Referring to my statement that one can go into a grocery and get pretty nearly a whole lay-out without using the scales once, I meant, of course, the *scales in the grocery*. As a matter of fact, food stuffs put up in paper boxes, I supposed, are not weighed at all anywhere. The packages are filled level full, and sealed; and when full they hold approximately a certain given weight.—ED.]

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

Many bees are short of stores this fall. If yours have not been attended to, look after them at once. They may still be fed, though it would have been better earlier.

◆

After the first hard frost, many colonies became so discouraged that they destroyed most of the brood in their hives, even uncapping and carrying the sealed brood. This is bad business, as these bees would have been valuable next spring.

◆

There will doubtless be a large mortality among the bees in this part of the State. Many will make no effort to save those that need help. "If they pull through, all right. If they won't, let them die," seems to be the verdict of a great many. Some have just learned that bee-keeping is not the bonanza they supposed it was, and bees are not as desirable property as they were several years ago.

◆

The use of rubber bands in transferring is a novel idea, and may prove valuable. When using string to tie the combs in, I must dissent from the advice often given to "wind the string around and around the frame." I much prefer to tie each wrap by itself, keeping the string always perpendicular to the top-bar and using no more string than is necessary. When it comes to removing the string, which is generally advisable, cut it on top, take hold of one end, and pull it out without removing the frame.

◆

SHAKING BEES OFF SHALLOW COMBS.

Doubtless Dr. Miller's objection to the editor's statement on page 960 centers on the use of the word *all* instead of *nearly all*. It is quite true, doctor, that one who knows how can shake very nearly all of the bees out of a double-brood-chamber hive of shallow fixed frames without touching a comb. I make shaken swarms this way, and have to be careful not to shake them too closely.

SIZE OF HIVE ENTRANCE FOR WINTER.

I was a little surprised at the editor's statement that he would prefer an entrance as small as an inch wide and ¼ inch high. I always believed in a good big entrance for winter, about ⅜ high and 11 wide; but I wanted the top of the hive tight and well protected. Perhaps with more upward ventilation a smaller entrance would be better. It is an easy matter to prevent an entrance from being clogged with dead bees. This is secured by setting the hive on a rim that will raise it about an inch and a half from the bottom-board, and having it so arranged that the entrance is in the upper edge of this rim. I used these for a number of years, and thought them very valuable in Illinois, though they do not seem to be as necessary here; but, though I like a large entrance for winter, I want to close it down as soon as they begin to raise brood in the spring. [See answer to a Straw in this issue.—ED.]

SWEET CLOVER.

I was a little surprised that any one should not understand my position in regard to the quotation about sweet clover on page 904. Perhaps it was taking too much for granted to suppose that everybody would understand it without direct comment in opposition, but I felt sure then, as I do now, that there are several thousand, at least, of GLEANINGS subscribers who know more practically about sweet clover than this so-called professor of botany. It will not do, though, to assume that this knowledge is possessed by everybody. Popular prejudice is undoubtedly against it, and is hard to overcome. I remember once hearing a poor farmer's wife lamenting that the drouth had been so bad that they had been able to raise scarcely any feed for their drove of cows, their principal means of support. She did not see how they were going to live that winter. It so happened that the road commissioners had that very day cut down a luxuriant growth of sweet clover, extending for several miles along the highway that passed their place. I advised her strongly to have him put this up for hay, telling her that there was a quantity of first-class feed to be had for the hauling. I learned afterward, though, that he was so firmly of the belief that it was worthless that he would not even experiment with it, and they pinched and scraped to make a living from their poor half-starved cows for which they might have had an abundance of nutritious feed if they had only had a little faith and common sense.

CORRUGATED PAPER IN SHIPPING-CASES.

Some have asked why, after using the corrugated paper strips in shipping cases for some years, I have abandoned them. For two reasons. They were a little more expensive and troublesome, especially after manufacturers began supplying drip-cleats with all cases. Secondly, experiment showed that I did not really need them. I have never had much breakage in shipping comb honey. I do not remember that a single broken comb was ever reported, and I know that a great deal of the honey I shipped went through without any breakage, for nearly every case was opened by myself after shipment. Others have trouble from breakage. Why? Because the combs are not well attached to the section. Nearly every comb of my honey is well attached to all four sides of the section. This is because I use a thin section and a sheet of foundation that nearly fills it. If I had as much loss from broken honey as some people I have known, I should think the corrugated paper a necessity. I have had sample lots of honey sent me, of which nearly half would be broken down. I have no doubt that, for the greater part of the honey sent to market, these corrugated paper strips would be a great advantage; and if the manufacturers of cases would make them in a wholesale way, and supply them with their cases, the cost would be but very slightly above the wood strips.

RIPENING COMB HONEY.

The editorial comment on page 1008 would seem to indicate the belief that the keeping of honey over from one season to the next was the main point aimed at in my experiments and articles on the prevention of granulation in comb honey. This is by no means the case. While my experiments have shown that Colorado comb honey can be kept for a year or more without granulation, I would not wish to be understood as advising this or advocating it as a practical thing to do under ordinary circumstances. The fact that this can be done, though, shows that the tendency to candy in the comb, which has been considered an objection to Colorado comb honey, and has led to its practical rejection in some markets, is something which may be avoided. There would ordinarily be no profit in holding honey over from one season to the next; but if we can prevent this granulation which has given Colorado honey a bad name in some quarters it will mean a better market for our fine honey and many more dollars in our pockets. Nor are the advantages to be confined to Colorado bee-keepers, for every producer of comb honey will be benefited, and will find his product improved if he will follow these suggestions.

It is no new idea that comb honey is ripened and improved by being kept in a warm temperature. Other writers as well as myself mentioned it a number of years ago and have advised it at intervals since.

Warmth alone is not sufficient. To ripen honey properly the air must also be dry. Then the honey in the row of unsealed cells that is often next to the wood will be evaporated down so that it will not run out, even if the section be laid on its side. Also any broken cells will have the honey in them so thickened that there will be no leakage from that source. But warmth and dryness are not sufficient. There must also be a circulation of air, and here I think is where many fail.

I find that it is the custom among almost all bee-keepers to leave the honey in the supers in which it was made until it is put into the shipping-cases. If kept in the supers they are piled up closely together; and if put into shipping-cases they are nailed up tight. In either case there is no chance for any circulation of air, which is necessary for proper ripening. I remove all honey from the supers as soon as I can conveniently do so, placing it in what I call storage-crates. These are simply skeleton crates, made by taking two pieces of board, each $4\frac{5}{16}$ wide by 17½ long. These form the sides of the crate. The bottom and ends are made by cutting lath of such length that, when nailed on the sides, the crate is ¼ inch wider inside than six of your sections. Four of these pieces of lath form the bottom; and two more, nailed on the upper corner of the ends of side pieces, make the ends, and it is by these that the crate is lifted and handled.

In these crates the honey is placed as it is removed from the supers, and in these I usually leave it until I am ready to send it to market. These crates of honey can be stacked up as high as you can reach, and there is always a good circulation of air through them. If the honey is to be kept in them very long, especially if they are where it is at all dusty, spread a piece of paper over the top of each crate. This keeps out dust, while still leaving plenty of ventilation. These crates, I might mention, are just as useful for storing and handling sections before they are filled with honey as they are afterward.

For heat for ripening the honey you should plan to use the heat of the summer sun as much as possible. Very often this will be all that is needed to ripen your honey thoroughly. Generally you will find it profitable to use some artificial heat, especially if you are going to keep your honey into the winter. Very often you can find a place in your house where the honey can be ripened without using any special source of heat. The waste heat from stovepipe or chimney may often be used. The honey that I kept over was stored in an upper room of our furnace-heated house, where it was always warm, without the expenditure of any extra fuel. In former years I have warmed my honey-room with a large lamp, with an oil-stove, and with a small hard-coal stove. I aimed to keep this room up to at least eighty degrees for several weeks, and after that to warm it up whenever the temperature got much below the freezing-point.

Honey that has thus been thoroughly ripened is not only improved in quality and made proof against granulation, but it will ship better, on account of there being no leakage, and because it will not break as easily, and it will also stand much better the abuse and neglect that it often meets on its way to market, such as when it is stored in a damp and cold place. Such honey will not absorb moisture as readily as that which is thinner. The comb is also much less liable to crack in cold weather.

GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

SWEET CLOVER.

I was much interested in the note of Mr. J. A. Green, criticising the bulletin from the Kansas station regarding sweet clover. Except that I had read the bee journals and noted the controversies on this subject in the past, I should be a decided partisan with the Kansas professor. I grew sweet clover for years, and was always pleased to note its value as a honey-plant. I was eager to demonstrate that it might also be used with profit for forage. Green or dry, it was alike distasteful to both my horse and cow. Indeed, I could not in conscience starve them to eating it. I notice that, in California, other grasses and clovers will be closely cropped while this is left to grow. Either cattle and horses vary in their taste, which is not improbable, or else, perchance, the clover is more or less savory, depending upon locality. I am free to say that I do not believe that melilotus, either yellow or white, will ever reach any great prominence for hay or pasture.

❧

BEES IN ENGLAND.

In our progress through the British Isles (and I have been in all three) I have been surprised to note the striking absence of large apiaries. While I have seen the few colonies scattered very widely, I have yet to see a large apiary, such as so frequently gladdens the eye of the traveler along the foot-hills of California. Indeed, I am told that there is but one person in all the British Isles who relies upon his bees for his livelihood. Usually the bees are kept simply to help out. One, if not the largest, bee-keeper, whose honey is put up in very fancy shape, each section glassed on both sides, and the glass bordered with fancy scalloped paper, has a good business aside from his bees. From my observation I believe bee-keeping here to be a much more precarious occupation than in the United States. A bountiful honey crop comes only from abundant nectar secretion; and it has been fully demonstrated that rather dry hot weather not only favors the flight of the bees, but also conduces to a honey-flow. The cool moist climate of the British Isles is inimical to both, and thus we may readily believe, as I am assured by bee-keepers here, that Britain can never be an ideal locality for bees. It lacks the favoring dry hot climate of Arizona, Colorado, Nevada, and Southern California,

INTENSIVE AGRICULTURE.

A very thrifty farmer, for the region, of Northern Ireland, told me a few days ago that he, like all his neighbors, had to pay on his 120 acres of land £20 ($100) annually for taxes and £100 ($500) for rent! This must be paid each year. What would our American farmers do under like circumstances? Does this not argue either the closest economy, which I think prevails here, or else greater productivity of the soil? I think this is true, though not to so marked a degree as I had previously supposed. I think more attention is paid here to cultivation and to manuring than is given by the average American farmer; though, so far as I have observed, the cultivation here is much less deep than in the States. Possibly this is the result of the more frequent and copious rains. I have wondered if the more numerous honey-bees might not in some part account for greater productivity. I have rarely ever enjoyed a day more than the one spent a few days ago in Kew Gardens, in West London. Although the day was cold and rainy I saw more honey-bees than I saw coming across the whole American continent from Oregon to Minnesota. There can be no question at all but that the honey-bees in securing the more perfect pollination add immensely to the fruiting of most plants. The snug condition of things in the British Isles crowds the bees, to the great gain of the agriculturist of this region. As I have hinted in previous articles, America will be wise if she take every possible precaution against scarcity of bees. Our agriculture should become more intense. By multiplying the apiaries everywhere in the agricultural regions of America we shall certainly work toward this desired intensity.

MIMICRY.

We use this word in science to indicate the frequent resemblances which we note in nature which are often so wondrously striking that we feel sure that they must possess some significance. The polar bear, like most arctic animals, is white. In those regions of eternal snow such color is ever a protection. The bear, the fiercest animal, is hidden from its prey, while the prey, in like way, is hidden from the bear. Thus, through adaptation to surroundings, both eater and eaten are alike advantaged by this mimicry of the snow. In Ohio, the weasel is white in winter, in time of snow, and brown in summer. We believe that this is mimicry for the good of the weasel. It aids him, not only to approach his prey, but also to escape from his own enemies. Who has not noticed the sober colors of the sparrows? Like most birds which frequent the ground, their gray or brownish costumes hide them, as it were, so that even the mother bird usually incubates her eggs in safety. I have known a case of the American woodcock, a species of snipe, which was so hidden while sitting upon the nest, that, even though we knew she was there, it took very close scrutiny to find her. I feel safe in saying that, except as we disturbed her by almost stepping upon her, we should certainly have not discovered her at all. It is among insects that we find the most numerous and striking cases of mimicry. From their great numbers we should expect this to be true, both from cause and consequence. Who has not seen the "walking stick," green at first, as it rests upon the leaves, and gray or brown later, when it attaches to the twigs? Other insects might as properly be called walking leaves, for both in form and coloration they are marvelously like the leaves among which they harbor. Even the mid-rib and veins are not omitted. The loopers, or measuring worms, as they stretch forth from a twig are so like a broken stem that I have often asked students to find them, stating that they were within a few inches of my finger, and often they would look in vain. The katydids along the beach have lost the green which is almost the invariable color of these insects, and have become sand-colored. The locusts, gray or brown in the East, are ash-colored on the alkali plains of the western desert. Tiger beetles, like the locusts, are green or gray as they rest on the grass or bare earth. In many cases, as with our common lady-bird beetles, the insects are highly colored, and hence strikingly conspicuous. This seeming exception has ready explanation. These insects are unsavory. They smell very bad, and probably taste worse, so their bright colors also aid them, as the bird that has been beguiled by hunger to eat one of these beetles would almost surely associate the bright hue with the acrid taste.

Perhaps the most interesting cases of mimicry are to be found among those insects whose habits attract them to the same places that bees are wont to visit. All nectar-loving insects, then, other than bees or wasps, will show numerous cases of most startling mimicry. Very many of the *Diptera*, or two-winged flies, sip nectar from the flowers. Often these two-winged flies are so like bees or wasps in form and color that they might deceive even the elect. Scores of times I have received from bee-keepers specimens of flies, often from our brightest bee-keepers, asking me to name "the bees" which they sent. There is one whole family of these flies — *Syrphidæ* — which give us a striking example of this mimicry. Many are striped with yellow, exactly as are the wasps, while some mimic almost exactly the bees. Undoubtedly the birds are often deceived, and give these flies the go-by, fearing the stings which they could not give. There is also an entire family of moths—the *Seseid* — which also sip from the flowers, and are so marked with blue and yellow that often one can hardly believe they are not veritable wasps, yet their bodies are brush-tipped instead of being sting-tipped, and they are indeed very different from wasps. They form our worst borers, as the caterpillars tunnel our trees and vegetables, and often do incalculable damage.

We have all recognized the fact that all organisms change. I believe these changes come through the impress of environment. Favorable changes aid the individual and favor its continuance, while harmful variations tend to its taking off. Thus we easily understand how this mimicry has originated. It is one of the many illustrations of the universal law of adaptation which prevails with all organisms. If I may be bold enough to moralize, I may say that its till clings to us, the highest of all animals. The man who is adapted so that he is in perfect harmony with his environment has surely won out. Even with us, mimicry often comes in to play a conspicuous part.

Editorial
By E.R. Root.

We have in hand some valuable articles of more than ordinary merit, to be published in our December 1st issue—notably one from J. E. Crane on the use of corrugated paper in shipping-cases.

It is with much regret that we record the death of Mr. C. T. Abbott, which took place at his residence in Southall, England, Sept. 27, at the age of 46 years. Mr. Abbott belonged to the well-known firm of Abbott Brothers, who succeeded C. N. Abbott, their father, in the manufacture of bee-supplies. The Abbott Brothers, as supply-dealers and manufacturers, have come to be known all over the world; and the bee-keeping world on this side of the great water will extend its sympathies to the surviving members of the firm.

RAISING QUEENS DURING THE WINTER AT MIAMI, FLA.

Mrs. Root and I are planning to spend the winter in Florida, and will probably get away some time in December. Since I have seen the boys work so successfully with the baby nuclei here at the Home of the Honey-bees during the past season I suggested I should like to try my hand at it on a small scale, and Ernest proposed I should go down to Miami and get right at it. Of course, a locality would be greatly preferred where there are no other bees near; but if I can not find such a place I will do the best I can. I think the climate of Cuba might be rather better; but my last "dose" of seasickness in coming home from Cuba rather prejudiced me against going out any more on the big ocean.—A. I. R.

RANGE OF BEE-FLIGHT DEPENDENT UPON WHAT?

R. C. Aikin, in the *Bee-keepers' Review*, says it is evident to him that the character of weather conditions and lay of country have much to do with the flight of bees, and he feels sure that his bees range from two to four miles from his yard. When I was visiting Mr. Alexander it was very plain to be seen that his 750 colonies in one location flew not only the mile and a half or two miles of commonly accepted bee-flight, but went three and possibly five miles. As a matter of fact, one could see buckwheat-fields five miles away in nearly all directions; and if the nectar was scarce in one field, the bees, if they could see that far, would probably keep on flying until they came to another white field with plenty of nectar. I shall present, in our issue for Dec. 15, a photo or two that will show those buckwheat-fields dotting the landscape in the distance miles away, and to which the Alexander bees are going. This explains *why* so many bees can be in one place.

THE EXTRACTED-HONEY BUSINESS INJURED BY MISREPRESENTATION.

In two-thirds of the States there are pure-food laws, and the laws are enforced in most of them, and yet there is a general belief that extracted honey is adulterated. This belief is continually fostered, as is also the case of comb-honey canards, by interviews, and items in cook-books and cyclopedias. The National Bee-keepers' Association ought, at the next convention, to set on foot a plan whereby all the cook-books, cyclopedias, doctor books, etc., containing these slanders about honey may be taken into consideration and their authors correctly informed as to the true facts in the case. It does not do much good for a manufacturer of bee-supplies to write to these people, because they conclude he has "an ax to grind." Of course, we can not efface the lines in the books already published, but we can prevent to a great extent the defamation of our business in the new editions. It is high time we were up and at it. Nearly every standard cyclopedia contains somewhere between its covers some misrepretation about honey.

THAT CURE FOR BLACK BROOD.

Possibly the most valuable article that we have ever published, one that, perhaps, may be the means of saving thousands of dollars, and put bee-keeping on a profitable basis in New York State, is one by E. W. Alexander, in this issue, on how to cure black brood with a minimum of labor and little or no expense save requeening. Mr. Alexander has been hiding his light under a bushel for a couple of years in order that he might make *sure* that this treatment was effective. When I visited him he incidentally told me what he had. It did not take me long to decide that he had struck on something that, perhaps, was the biggest thing that had developed in four or five years in bee-keeping. Of course, I asked him for the privilege of publishing it, and finally made arrangements whereby the complete process was to appear in GLEANINGS. Possibly it may not work with others as it has with Mr. Alexander; but this one thing is sure: One who has black brood will grasp at straws.

OUR CAUCASIAN BEES AGAIN; THEIR GOOD AND BAD TRAITS.

I HAVE just asked our Mr. Mel Pritchard, who has charge of our bees, how *our* imported Caucasians are doing, and how their temper is, compared with that of other bees. He says they are unquestionably the gentlest bees he ever handled. He has mauled the hives around in all sorts of shapes in cool weather, and the bees paid no attention to it. He can hardly make them show fight.

But they are unsatisfatory in one or two other respects. They do not know enough, he says, to take syrup out of a common feeder in the hives when they are short of stores. He has been trying to make them put the syrup into combs. But it is the old case of leading the horse to water that wouldn't drink.

Another thing, if the weather is a little cool they will not venture out of the hive until an hour or an hour and a half *after* the other bees are out in the air. This may or may not be a desirable trait in chilly weather. At all events, Mr. Pritchard thinks the bees are too good-natured to be good for any thing, and that this particular colony will need a lot of nursing to bring it through winter. On the other hand, the climate of the Caucasus regions is about the same as that of Italy or Florida. If the bees are able to survive in Russia they might not live through in our climate. Even if these bees are not quite equal to Italians for honey-gathering the fact that they are so very gentle will make them much in demand with a large number.

MARKETING BEFORE THE HOLIDAYS.

ON the 20th of October we had a visit from Mr. S. J. Griggs, of the Griggs Bros., Toledo, O., a concern that does a large business in wholesaling and retailing honey as well as the handling of supplies from that point. While here I took occasion to interview him about the honey business. As he has had a large experience, what he has to say ought to have considerable weight.

"In the first place," said he, "bee-keepers are beginning to learn the importance of selling their honey before the holidays. Mr. Selser, through the columns of GLEANINGS, never said a truer thing than when he stated that there was little or no demand for table honey after Jan. 1. You have done a good thing for the bee-keeping fraternity in preaching that doctrine, especially where you urge bee-keepers to get their honey on the market early. Our table-honey trade is practically nothing during January, February, and March."

HOW THE TRADE IN COMB HONEY PUT UP IN CARTONS HAS BEEN RUINED.

"Do you buy or sell very much honey in cartons?" I asked.

"We do not," he replied, "and I will tell you why. The carton trade has been almost entirely ruined among the retail dealers, for the simple reason that some bee-keepers have put up their very poorest comb honey in cartons. When I expostulated with some of them they simply said, 'The trade wants something cheap, and I give it to them in cartons.' 'But don't you know,' I said, 'that you will kill your own trade quickly?' No, they did not think so. But they did just the same; and now when I talk about comb honey in cartons to my grocer friends they tell me they want no more of it."

I suspect there is much truth in what Mr. Griggs says. The original purpose of the carton was to protect an extra fancy honey, for there can be no question that cartoned honey will ship better because the folds of the pasteboard top and bottom make a very serviceable and effective kind of cushion; and then the pasteboard, front and rear, protects the delicate face of the honey itself. The carton has its legitimate use; but when a bee-keeper, in order to get rid of his undesirable honey in sections, puts it in cartons and then tries to palm it off on the trade as No. 1, he is making a serious mistake.

FRUIT A STRONG COMPETITOR OF HONEY.

"Another thing, I have observed," he continued, "there is liable to be a lull in the honey business when large quantities of fruit are unloaded in the market. Many who might purchase honey as a table delicacy will take home fruit instead. When the canning season is over, and cold weather comes on, the honey trade begins to improve; and that reminds me," he said, "that the trade always starts up in cold weather, and seems to be sluggish during warm weather in the fall."

"Can you explain why the temperature has any thing to do with it?" I asked.

"No, I can not; but I have observed that other honey-buyers and commission men have remarked the same thing."

In the quotations of the honey market in our late issues one will see the statement often made that warm weather is responsible for light honey sales; but our Mr. Boyden, who has a good deal to do with the honey business, doubts very much whether the temperature has any thing to do with the matter. The sluggish condition of the market he thinks must be due to some other cause.

"Do you sell much honey to the baker trade?"

"Yes, considerable. I disposed of quite a lot of Cuban honey to the bakers, and they all expressed themselves as being extremely well satisfied with it. Cuban honey has some qualities about it that make it especially adapted to the baker trade."

How to Rid Your Apiary of Black Brood.

A Cure that is Easily and Cheaply Applied without the Destruction of Combs, Bees, Hives, or Utensils; a Valuable Article.

BY E. W. ALEXANDER.

[It may, perhaps, stimulate a more careful reading of this article than it would otherwise receive if I state that we have paid Mr. Alexander for the privilege of giving this method to the world more money than we have ever paid for any other article we have ever published, several times over. Black brood, or the New York bee-disease, probably the most destructive of any brood disease, was raging among Mr. Alexander's bees with unabated fury three years ago. When he blundered on to this cure he scarcely realized that he was going to rid the bees of the disease; but the proof of the pudding is in the eating. I personally inspected hundreds of *the very combs* that were, three years ago, badly infected, and which at the time of my visit were filled with as nice solid healthy brood as one could wish to see. There was only one colony that had a cell or two of the disease, but this one was not treated strictly according to the method to be described. One or two of the details were omitted to see how far he could deviate from the plan. It is, therefore, with more than ordinary pleasure that we are placing before the bee-keeping public one of the most valuable communications that it has ever been our lot to give in these columns. I expect to have it all printed in small pamphlet form, and send it out for free distribution by the thousands. Of course, I may be mistaken as to its value, but I *hope* it will be the means of entirely emancipating the State of New York from the ravages of this dread disease, and other places where it may find a footing.—Ed.]

This has been one of the hardest problems for me to solve that I have ever met in bee-keeping. For three years we tried every thing in the line of disinfectants that we could hear of, also putting our bees on foundation, which did but little good. Some of the things we tried seemed to help at first to check its deadly work; but in a short time it would show itself again as bad as before; and so the years went by while we lost nearly our entire honey crop and over a thousand colonies before we got the first sign of a cure, and even then it was so simple it seemed like a drowning man catching at straws. But I kept at the little proof I had until I developed it into a perfect cure. Then for three years we tested it thoroughly on hundreds of colonies, so that we could be sure it was a cure which could be depended on, and now I send it to GLEANINGS for The A. I. Root Co. to give to the world.

This cure is on the line of introducing new blood into the apiary, which will necessitate getting a choice Italian breeding-queen, one of the best honey-gathering strains that can be procured. For this special purpose I prefer quite yellow Italians. Now for the cure.

Go to every diseased colony you have, and build it up either by giving frames of maturing brood or uniting two or more until you have them fairly strong. After this, go over every one and remove the queen; then in nine days go over them agein, and be sure to destroy every maturing queen-cell, or virgin if any have hatched. Then go to your breeding-queen and take enough of her newly hatched larvæ to rear enough queen-cells from to supply each one of your diseased queenless colonies with a ripe queen-cell or virgin just hatched. These are to be introduced to your diseased colonies on the twentieth day after you have removed their old queen, *and not one hour sooner*, for upon this very point your whole success depends; for your young queen must not commence to lay until three or four days after the last of the old brood is hatched, or 27 days from the time you remove the old queen. If you are very careful about this matter of time between the last of the old brood hatching and the young queen commencing to lay, you will find the bees will clean out their breeding-combs for this young queen, so that she will fill them with as fine healthy brood as a hive ever contained. This I have seen in several hundred hives, and have never seen a cell of the disease in a hive after being treated as above described.

It is not necessary to remove any of the combs or honey from the diseased colony; neither is it necessary to disinfect any thing about the hive. Simply remove the old queen, and be sure the young queen does not commence to lay until three or four days after the old brood is all hatched. This treatment with young Italian queens is a perfect cure for black brood.

In regard to those old queens that were formerly in your old hives, I think it best to kill them when you first take them from their colonies—not that the queen is responsible for the disease, for I am sure she is not; but a young Italian queen that has been reared from a choice honey-gathering strain is worth so much more to you that I can not advise saving these old queens.

I have experimented along this line considerably, and found, after the colony has been without a queen 27 days, as above directed, it will usually be safe to give them one of these old queens, and the cure will be the same. Still, there have been exceptions, so I advise killing them at once.

Now a few words about your breeding-queen. Buy one of the very best you can for this purpose; for upon her real merits rests the true value of your apiary hereafter. I would buy a three-comb nucleus with this valuable queen, so as to run no risk in introducing her to a full colony.

Now, my friends, don't let another season pass without cleaning your apiary of black brood, and also at the same time requeen it with young Italian queens so you will not only harvest a fair crop of honey next summer, but will have an apiary that you will be proud of and take pleasure in showing to your friends. I know many of you have become discouraged in trying to rid your apiaries of this fatal disease; but that does not help matters any. The only proper thing to do when these troubles do come is to face them with a determination to overcome any and every obstacle that comes in your way; then when success rewards you for your perseverance, how pleasant it is to look back over the past and realize that you have accomplished all you labored for! I hope that you who have this disease in your apiaries will give this treatment a thorough trial next season, and please report the result of your trial to GLEANINGS so that every reader of it will have your opinion of the method.

In my next article I will call your attention to some of the possibilities of bee-keeping; and in doing so I think I can show at least some of you how you can realize more net profit from an apiary of one hundred colonies than many obtain from apiaries of several hundred. For some time I have expected some one would take hold of this subject and write a series of articles telling us how we might add much to our present income. If in my attempt to accomplish this I fail I shall have the consolation of knowing it was in a good cause; and if I succeed it will afford me much comfort to think I have added my mite toward helping my brother-man.

Delanson, N. Y., Oct. 7.

[I wish to call our readers' attention to the fact that there are two or three important factors in administering this treatment. The first is Italians, with a preference for the extra-yellow stock. Experience has shown in thousands of instances that black bees are very much more prone to get this disease in the first place, and when they do get it they are more liable to succumb to it than Italians or Carniolans. Put this fact down big.

Second, the bees must be *given time enough to polish up* — that is, disinfect their combs *in anticipation* of a laying queen; for, as Mr. Alexander points out, the bees must not be allowed to have a queen until after 20 days of queenlessness. The *rationale* of this is thorough cleansing and disinfection. During the 20 days that intervene, the bees are *constantly expecting* a queen, and therefore polish and repolish up the cells ready for her. This scrubbing apparently cleans out all the old germs of the disease. During the interval of twenty days the nurse-bees use up all the chyle, or larval food, containing a taint of the disease.

Now right here this question may come up. When brood-rearing stops in the fall, there is not only 20 days without brood, but many times 20. Why, then, should these same colonies next spring, as they have repeatedly, come down with the disease? Mr. Alexander explains it in this way: When the queen stops laying in the fall, the bees do not polish up the combs as they do in the height of the season, when the bees are fairly howling for brood or eggs. The combs are left smeared with dead brood; the stuff dries on hard, and is not removed till the subsequent spring; but in the height of the laying season or brood-rearing season the combs are cleaned up, when the dead matter can be removed in a sort of viscid state, and before it has been glued fast to the walls of the cells. Mr. Alexander and myself talked it over in company with no less a bee-keeper than P. H. Elwood, who was present one of the days when I was at Mr. Alexander's yards. On no other ground can be explained this cure, except, possibly, that the disease might have run its course at the Alexander yard, the same as many infectious diseases do. But when we understand that black brood continues on in other yards in the immediate vicinity where this treatment has *not* been applied, we are almost forced to the conclusion that the Alexander plan has a great deal to do with the disappearance of the disease.

Another fact that seems to be a part of the treatment is that of the removal of the old queen. In view of the fact that it always pays to requeen at least once in two years, and sometimes oftener, we can hardly count the destruction of the old mother an actual loss. The only loss we can figure on at all is the absence of all brood for 20 days; but this does not compare with the nuisance and expense—the great expense—of destroying thousands and thousands of good combs as well as the frames containing them. Even if we melt them up the return is small comparatively. Then there must be the foundation, which, according to the McEvoy treatment, must be cut out at least once, compelling the bees to try again.

Up to the present time the McEvoy treatment was considered the most effective, but not a cure in many cases. The reason for this is not hard to understand. The destruction of the old combs and the compelling of the bees to draw out two sets of foundation involves the cessation of brood-rearing at least a week and probably longer, and, at the same time, the entire removal of the source of infection that might be in the old combs. But the treatment too often failed because the germs of the disease would still reside in the alimentary tract of the bees, sufficient time not having elapsed (20 days). As soon as the young larvæ require feeding, the larval food itself would be liable to have the germs and reinfect the young brood.

Another interesting fact is that Italians are more proof against the disease than the blacks; and why is this so? Probably because they are less inclined to rob, but more probably because they do a more thorough job of *housecleaning* than the native bees of this country.

The question may naturally arise now, whether or not this Alexander treatment would not prove equally effective in the case of foul brood. We do not know. Mr. Alexander is somewhat doubtful, for the reason that the dead matter of foul brood forms a more tenacious glue (and hence an almost insoluble coating that the bees can not remove) than the coating formed by black brood. This is a matter that can be tested the coming season. In the mean time. our bee-keeping friends in Cuba who are afflicted with foul brood would do well to test this plan immediately. We should like to get reports this winter, so the bee-keepers of this country may know what to depend on next season.—ED.]

THE HOFFMAN FRAME.

Is it True that its Popularity is Due to the Recommendations of the Root Co.?

BY ALPINE M'GREGOR.

I notice that the long controversy on the Hoffman frame is still on; and as it was started, presumably, by my letter to Dr. Miller on page 243, March 15, 1903, I wish to say a few words.

I adopted the Hoffman frame the first year it was introduced by the Root Co., and have been using them ever since by the hundreds, until about two years ago, for both comb and extracted honey. I ought, therefore, to know something about this frame, and I may say that my opinion of it is settled and final.

On page 954, Sept. 15, you say, "The only question with me, or ever has been, is, which frame (the Langstroth or Hoffman) was better adapted to the use of farmers or beginners." The impression one receives from this statement, taken by itself, is that all these years during which you have been advocating the Hoffman frame, proclaiming its merits by voice and press, making it your leader in every catalog right down to the present time, you intended it for the use of these two classes, and not for the expert. You are sure now, and always have been, that the Hoffman is the frame for "farmers or beginners." I take direct and square issue with you on that point.

I suppose that most bee-keepers of to-day were at one time farmers, and it is certain that all were beginners. At just what point in a beginner's life he ceases to be such is not clear. It is well known that a beginner's bees increase very rapidly under the stimulus of enthusiasm and natural swarming, and he probably has 40 or 50 colonies before he is capable of judging as to the merits of either hives or frames. He has started out with the Hoffman frame because it was recommended by some firm or some man in whom he had confidence. He has, let us say, 50 colonies, and more than that number of supers full of Hoffman frames, and now the truth dawns on him (as it assuredly will in nine cases out of ten) that the Hoffman frame is not all he had hoped for and expected; that, in fact, it is far inferior to the old hanging frame. What is he to do? He may, perhaps, sell out to some one who does not know any better than to buy, or he may throw them on the rubbish-heap for kindling-wood, or do as the writer did—transform them to the regular hanging frame.

As to buying bees from farmers or beginners, I should very much prefer to buy them on the Langstroth frame than on the Hoffman, and for the very simple and obvious reason that, no matter how inaccurately the former were spaced, a few skillful strokes with the uncapping-knife will reduce them so that they can be properly spaced, and then the bees complete the job; whereas with the Hoffman, even assuming that they have been kept crowded together (and they are not), they have to be made over into the hanging frame by long, tedious, and exasperating labor.

I notice that Mr. W. L. Coggshall is one of the victims of the Hoffman frame, as stated on p. 485, June 1, 1903, and he wishes to be rid of them. He probably adopted this frame while he was a farmer and a beginner—or, perchance, like the writer, after eight or ten years' experience as a bee-keeper solely on the judgment, the wide experience, and the mental acumen of the editor of GLEANINGS, under the impression that it was intended for the expert as well as for "farmers or beginners."

Right here let me digress for a moment to say to Dr. Miller that he is right in thinking that I did not mean that "rapidity in handling does not count with me." I meant the rapidity gained(?) in handling the Hoffman, for there is practically none. The prying of these frames apart, replacing them again *without killing bees*, and repairing those edges which are continually splitting off, takes more time than spacing the hanging frame.

You have been convinced, Mr. Editor, that the Hoffman frame is inferior to the Langstroth for the producer of extracted honey, and have frankly told us so. If you could go a step further, and decide that it is also inferior for the comb-honey producer, the farmer, and the beginner, the bee-keeping world would soon know it, and you would find that the demand for the Hoffman frame would rapidly decline, and soon, I hope, cease altogether.

Now just a word to those who find themselves loaded up with the Hoffman frame and wish to be rid of them.

I did not, as intimated to Dr. Miller, whittle off those edges with my knife, as I had not time for that. I hired a boy, put a small plane in his hand, and he planed the edges of both sides of the end-bars. The next problem to solve was how to restore that quarter-inch to each end of my mutilated top-bars. I finally hit on the following plan: I secured a small half-round gouge, about ⅛ inch in diameter; screwed the top-bar securely in a vise; pulled out the end staple; cut a piece out of the under side of the top-bar with one stroke of the gouge, and drove in a 2½-inch wire finishing nail, using a gauge to drive it the right distance. The only thing lacking was to drive the staple at the *lower* end corner, which is the proper place for it, and now I have the old hanging frame again, practically the same as it came from the hands of that grand old man, the Rev. L. L. Langstroth.

Inglewood, Ont., Can., Oct. 12.

[No doubt you will be surprised when I tell you that I do not very greatly disagree with you when we take into consideration the matter of *locality*. What I have said in favor of the Hoffman frame has been based on the *average* locality and the *average* beginner or farmer class. You and the other fellows who are opposed to the Hoffman frame apparently think that the propolis question is the same in every place on this continent. I do not believe I am boasting when I say I have seen the conditions as they actually exist in more localities than any other bee-keeper in the United States; and when I favored the Hoffman frame in my recent editorial footnotes it was after a careful inquiry and study into this one question of propolis, and the tendency of the average beginner and farmer class to space their loose hanging frames all wrong. Now, friend M., do not lose sight of the word *average*, and then I think we shall be able to understand each other. I have never insisted that the Hoffman frame was the *ne plus ultra* for *all* localities for all bee-keepers. There are plenty of editorial footnotes to bear me out in this assertion as well as the general statement under Hoffman frames in our catalog. For example, refer to the write ups of my visits to Dr. Miller's home. When I saw the propolis that was gathered in his yard, and stuck all over every thing, I freely acknowledged that a nail-spaced or a metal-spaced frame was better for such a locality than one having wooden projections like the Hoffman. I strongly suspect that your locality is very much like that of the doctor's, because you speak of the wooden projections breaking off so constantly. While this has happened at our own yard the instances of it are comparatively rare. The only wonder with me is that you continued to use the Hoffman frame as long as you did.

Now, then, to get down to the kernel of the criticism, if the Hoffman frame is unsuited to a few localities, shall we condemn it for localities where the conditions are far more favorable ? If I honestly believe it is the best frame, then the only thing for me to do is to be consistent with my convictions. If any one can get up a self-spacing frame that removes entirely the objections to the metal spacers and wooden spacers, a frame that is really practicable for all localities, I strongly urge such person to get his idea patented, and the Root Co. will pay him a fair royalty for the use of the invention. I am frank to say that we are looking for a frame that will suit everybody everywhere; but I am equally frank when I say that I do not think we shall ever find it. Conditions in various localities in the United States vary so much that what is just right for one may be all wrong for another. This is very clearly shown to the Eastern farmer when he goes west and tries to farm or ranch it as he did down east. As a matter of fact he has to have slightly different tools, and use entirely different methods. The stump-puller is almost a necessity in some localities, but utterly useless in a prairie country. While the conditions surrounding Western bee-keeping are not so greatly different from those surrounding the business in the East, yet there is enough difference, often, to require a different hive and sometimes a different frame.—Ed.]

UNRIPE HONEY; OUTDOOR FEEDERS.

Extract Thin Unripe Honey before Uncapping that which is Ripe.

BY HARRY LATHROP.

I have been pleased to observe how Gleanings has advocated the thorough ripening of extracted honey; but not all has been said that might be as to methods of securing the desired results. Not many bee-keepers have enough store combs to allow tiering up until the whole crop is in and had time to ripen. In my experience I have been able to dispose of considerable amber honey each year at prices very nearly as high as that obtained for the best white. I am careful to have it well ripened, and find many people who prefer those stronger flavors.

Perhaps some who follow the general rule, that the combs should be two-thirds sealed before extracting, do not realize to what extent good honey can sometimes be injured by the mixing-in of green nectar that is found in combs sealed as above.

At one time this summer I had a good many hives that I wished to extract. The combs were thick and heavy, and fully two-thirds sealed; but along the lower edges were many open cells containing thin unripe honey. We waited several days; but as the conditions did not seem to improve, I had my man run those combs through the extractor before uncapping, taking care to turn slowly so as to avoid breaking them. Rapid turning is not necessary to throw out the thin honey in the open cells. The combs, after being run through once, were then uncapped and the ripe honey was extracted. That honey pleases every one, regardless of the fact that it is several shades off from white by the admixture of honey from various sources, other than white clover, which formed the body.

We had several cans of the green stuff, which had a disagreeable taste and was not much thicker than water. I thought of feeding it back, but decided to have it cooked on the stove. This was done, with the result that we got a splendid syrup. It is rather dark, but has a very thick smooth body, and sells readily for what it is — honey syrup.

I never heard of this plan before, so I thought it would be well to report it. Every pound of well-ripened honey that is sold to consumers is a help to the general industry of bee-keeping, and every pound of unripe honey sold is a detriment to the same.

Some seasons there would be no need to resort to such methods, as the honey will be ripe and heavy in a very short time after it is stored. Last season it was that way on this field. Honey was so thick that it was difficult to handle.

I will give you a plan for outdoor feeding, which may not be as good for curing the robbing nuisance as the one you describe, but it is a safe way to have the feed taken care of without injuring the bees.

In the upper story of an empty hive, having its entrance verv small, place a pan or crock of the thin sugar syrup. Use grass or excelsior for float. I have several of these feeders going in different parts of the yard at the same time. This is in order that every hive in the apiary may be the more likely to get some of the feed. The bees, after entering the lower hive, have to go so far for the sweets that it does not excite them too much. Each bee gets its load, and then hikes for home. What a blessing if every man would do the same, and had a home to which he could "hike"!

Bridgeport, Wis., Oct. 6.

NOTES FROM CUBA.

Italian Bees in the Tropics.

BY LESLIE BURR.

"Survival of Italian blood shows them best fitted for the tropics" will not apply to Cuba, for here it is, if any thing, *more difficult* to keep up pure Italian blood than in the North. The reason is, that queens here lay every month in the year, and for that reason their average life is about half as long as that of queens in the North; and, as a result, an apiary of Italians will degenerate about twice as fast. I think there is something in the theory that black drones are quicker on the wing than the Italians, and are not so prone to rear drones, which is another factor in favoring the blacks.

MOVING BEES WITH THE ENTRANCE OPEN.

To do so a great deal depends on the strain of bees you have. I have come in contact with stock from Jamaica, also from some southern queen-breeders, and to *attempt* to move them with the entrances open would be suicidal. We have a case on record here on this island where bees of this strain were being moved, when a hive broke open, with the result that the mules which were hauling them were stung to death.

BEE PARALYSIS.

This trouble, or, as some here call it, "that crazy disease," at times has done considerable damage. There were cases last year where it depleted whole apiaries. It attacked the colonies just before the campanilla bloom, and weakened them to such an extent that they were worthless for that flow. This year I saw a few cases of it in August. The colonies that were affected were all in one corner of the apiary. The disease seemed to make no distinction between blacks or Italians, as both were affected. With this disease there still seems to be plenty for the scientific investigator to unravel.

THE FOUL-BROOD SITUATION.

The Cubans say, "Wherever American bee-keepers go, foul brood follows;" and one of the extensive Havana bee-keepers says, "I always expect to get foul brood in an apiary about every so often." As to the extent of its existence, I personally know it has existed the past year in Pinar del Rio, Havana, Matanzas, and Santiago Provinces; and much has been shipped into Santa Clara and Puerta Principe Provinces from the others, in some cases from infected districts. I think there is still a chance for the American colonist, who has seen nothing of Cuban bee-keeping outside of his own banana-patch, to become aware some day of the fact that foul brood does exist in Cuba.

TREATMENT.

Conditions here make it more difficult to treat foul brood successfully as it is treated in the North. The best, surest, and cheapest way in the end to handle it here is to shake the colonies, and then move them immediately to a new location.

COMB-HONEY PRODUCTION.

For the average location this is not a success; in fact, there are but very few locations where it can be produced profitably; for to do so you must have a summer flow. Then, again, there is but little of the honey gathered during the summer months that is good enough to compete with the Northern product; so, although the campanilla honey of Cuba is as fine an article as any the North can produce, the cool nights which we have at the time of year it is in bloom make it very unprofitable to produce comb honey.

QUEEN-REARING.

Cuba has several natural advantages for queen-rearing, which are as follows: We have locations where queens can be reared under the swarming impulse during March. That makes it possible to produce the very best kind of queens and have them ready for shipment as soon as the Northern apiarist can use them. And, again, by having the queens mated on a small island, of which there are plenty, a league or so from the coast, pure Italians can be guaranteed; and then last, but not least, thanks to the Ward Line mail boats, which, with the assistance of the Gulf Stream, take but two or three days to reach New York, it is possible to get as quick delivery as from the Southern queen-breeders.

The disadvantages are, of course, foul brood, paralysis, and the like. But Cuba is no worse in that respect than many parts of the United States; and the danger of buying from Cuba would be no greater than anywhere else. You always have to depend somewhat on the *honesty* of a queen-breeder as to what kind of stock you get.

Casanovia, Cuba.

* * *

SHALLOW HIVES, AGAIN.

Advantages in Favor of Having the Brood-nest and Super for Tall Sections One and the Same Depth; Prefers, though, a Brood-nest Slightly Deeper; Foundation in Fall Sheets instead of Starters.

BY W. K. MORRISON.

It seems as though I should have to say another word with reference to the shallow hive, though it seemed to me that my remarks at the time had about exhausted the subject; at least, so far as my personal feelings went the subject had been fully exploited. But the article by Mr. E. F. Atwater, June 15, brings up the subject of starters and shallow frames in such a way as to call for a reply on my part. (Messrs. Root and Danzenbaker will have to defend themselves.)

Now, there are renegades besides myself — Messrs. Stachelhausen, J. E. Chambers, and L Scholl, for example. They are professionals, while the writer is an amateur. However, I have reasons for the faith that is in me when it comes to the case of starters vs. sheets of foundation in a brood-nest. My experience in bee-keeping covers a period of 35 years, in quite a number of countries, with all sorts of hives and appliances, and nearly always a buyer and seller of bees and hives, and my experience leads me to affirm most strongly always to use full sheets of foundation in brood-frames, and also *wire your frames* — particularly so if the reader be a novice. You may get tired of bee-keeping; you may have to move, you may have to give up for many reasons, and then when you want to sell you'll wish these frames of yours had had full sheets and were wired. Oh my! you'll wish many times over you had done so, when it's too late. There are other reasons. It seems like folly to buy fine hives and then waste a fourth of the inside of them with worse than useless drone comb and transition cells. To some extent this explains why some people get better results with eight frames than others with ten. I am quite well aware that nice wired combs may be had by using starters, but with a good deal of unnecessary fuss and bother; but most people fail, and get more drone, crooked, and bad comb than they ought to have. That is my experience.

Not long ago one of these old-fashioned *practical* men asked me to sell his apiary for him; but such a thing was almost impossible. It was immovable, and it remains—rotting. *He used starters in his brood-frames.* That's all. I can assure Mr. Atwater and any other doubting Thomas that my experience has cost something, and, like Aneas, I can say, "The greater part of which I saw, and some part of which I was."

Yes, I'll say it again, using starters is a step backward — it's ancient history. Don't do it, Mr. Beginner. You will bless me later for the advice.

All sorts of methods have been proposed—the Barber plan, the "shook" swarm plan, the Townsend plan, the "bait" plan, to get the bees to deposit all their honey in the sections without delay. Now, what I propose is to use a shallower hive, and so cut the Gordian knot. There is no doubt that a hive shallow enough will do the business every time.

Generally this plan is opposed with the statement that the bees will carry pollen into the sections. My experience is opposed to this; in fact, I found if starters were used in deep frames there was more chance of getting pollen upstairs. It seemed to me the parties who reported this had had a limited experience along this line. They use a shallow frame in England with no bad results, and some of the most enterprising bee-masters in the world follow this method. The new edition of the A B C shows Mr. Louis Scholl in the act of opening just such a hive as I suggest (see page 226). This is not a small hive by any means, though some labor under the misapprehension that I advocate small hives. The Ideal super with shallow extracting-frames forms, to my mind, a very good hive — very much so for out-apiaries. It is capable of almost indefinite manipulation. It is light, and easy to handle. But where it leaves all rivals hopelessly behind is when it comes to the production of comb honey.

I am of the opinion that it can be improved. An inch added to the depth would suit me better, and an inch to the width to allow of 12 frames 1¼ inches from center to center. The object of this increase is to make one super the equal of an eight-frame hive in brood capacity, and also to get 45 1-lb. sections in a super. This latter improvement reduces the number of under-weight sections; it also reduces the work and the cost of the hive. If one super will do the work, why use two?

For Cuba, Jamaica, and other hot countries, a shallow hive for comb honey is a necessity; and even for the far North it is no fault if the brood-frame is shallow provided it is large enough to accommodate a fair-sized colony. A divisible brood-chamber is somewhat of a nuisance. It just doubles the work, with no compensating advantages. Personally I have secured fair results with a brood-chamber no larger than an Ideal super, and where poor seasons are the rule it may be a good thing to use it. Where one wants to produce both comb and extracted honey there is nothing better than a hive made up of three Ideal supers. This gives a super of comb and a super of extracted alternately. The queen is restricted to one chamber; but every time an extracted super is put on, some of the brood-combs are lifted from below and put on top. This puts a check on swarming, and is better than "shook swarming," as there is no loss from sulking or the bees going off and swarming out. This is an ideal way with any one running an out-apiary. Of course, a queen-excluder must be used. I generally lift the combs containing solid masses of brood, leaving the ones with pollen for the queen to breed in. As a check to swarming it answers very well; but the only real effective method of swarm prevention is removal of the queen for a time, and for this method a shallow hive answers very well. In a shallow hive it is easy to locate the queen, and it is very easy to shake the bees off the frames. It means easy, quick work all round. Try it, friends, and be convinced.

[This question of foundation in full sheets or starters is one that hinges a good deal on locality and the man, as well as on the season of the year when it is practiced. I believe with you, however, that the average beginner would do better to use foundation in full sheets until he learns the times when he can give the bees starters and have them worked out into worker comb; for an expert *can* get all worker comb if he knows *when* and *how*.

The arguments that you have advanced in favor of a shallow brood-nest, or, more strictly speaking, a divisible brood-nest, is about the same as those advocated just about 19 years ago when Mr. Heddon and others brought this feature prominently before the bee-keeping public. I myself have always been an admirer of the system, believing that there were wonderful possibilities in the use of a sectional hive; but for some reason for which I can not account, notwithstanding all the pretty arguments that have been advanced in favor of such hives very few of them, comparatively, seem to be in use. Where used at all they seem to be by experts.

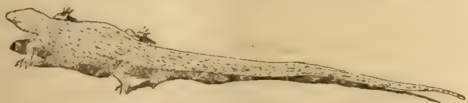
When you advocate a brood-nest slightly deeper and wider than the Ideal super for taking tall sections, you are urging almost the exact dimensions that Mr. Danzenbaker adopted for a brood-nest.—Ed.]

A "GROWING" WAX-PRESS EMBODYING SEVERAL NEW FEATURES.

California Lizards.

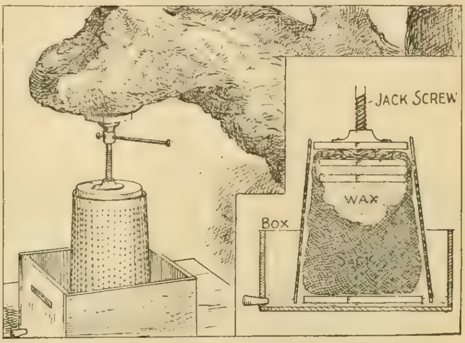
BY J. W. GEORGE.

I am sending you two pictures. One is the picture of a lizard. You know the "gag" here is that California is noted for big liars and little matches, and I think we



might add big lizards to the list. The one whose picture this represents measured only 17 inches from tip to tip.

The other picture represents my wax-press. I think this is the *only* wax-press of its kind in existence. I do hope that none of those fellows who are always "bobbing up" and butting in, and claiming to have been using the same device for years, will not rob me of all the glory of having originated this press, for the glory and the use of this individual press is all I shall get out of it, for I have none for sale. It takes too long to grow them. This one has been in course of construction for many years.



Mr. Editor, you have claimed that the best press would be a spring and screw combination. I have it in this press. I use a 1¼×10-inch jack-screw, and a sycamore tree which is about 30 inches at the butt. It bends over in the form of a bow and comes near the ground about 16 feet from the root. I place my jack about 12 feet from the root of the tree. I screw the jack up until it raises the body of the tree at the 16-foot point two inches. You can have some idea of the pressure I get by looking at the body of that tree, and imagining the lowest part of it being raised two inches, and held in that position.

The wax is held in a cylinder made of 16 iron, 12 inches in diameter at one end and 13 inches at the other, and punched full of holes, and just long enough to hold a barley-sack which I place inside and pour the hot wax into the sack. I use four followers that will just pass out of the lower or small end of the cylinder. Two followers go inside of the sack—one under the bottom of the sack and inside of the cylinder, and the other on top of the sack after it has been folded over the wax. This cylinder holds heat well. I have had the wax drip for an hour under that pressure. The cylinder is inside of an ordinary box which is water-tight, and has a hole with a plug for drawing wax off when the box is full; but the box *must* be placed on a solid foundation.

I will say to any one who has a similar bending tree that you have the principal material for a fine wax-press. Mine cost me an empty hive, which I use for the box, an old piece of sheet iron, half a day's work, and $1.65 for a jack-screw.

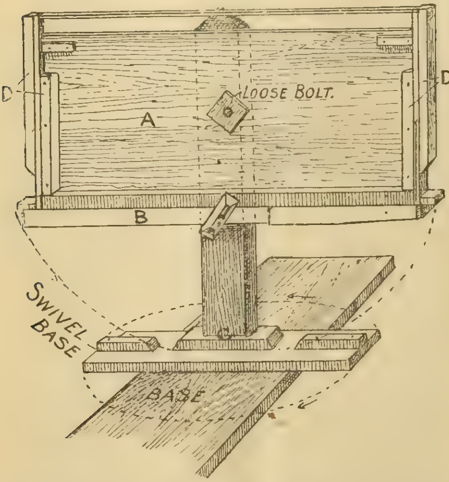
Lakeview, Cal.

[There is no question but our correspondent has something valuable in the way of that big tree to work in conjunction with a wax-press. As I have before pointed out, a spring and screw in combination, where they can be applied, is better than a screw alone. Now, it just occurs to me that one or more trees can be found in the average apple-orchard in the North, with low-spreading limbs that can be used to reinforce the jack-screw, as shown in the illustration. Every locality will have some kind of tree that can be used for the purpose.—ED.]

A DEVICE FOR HOLDING FRAMES WHILE NAILING.

BY A. J. WILHITE.

Common lumber is used throughout the construction of this holder. *A* is an inch board 17⅝ inches in length. *B* is the same length, 2¼ inches wide. Two upright pieces like *D* are nailed at each end of *A*; they are 2¼ wide, ½ thick, but lack 1¼ inches coming to the top of *B*, which open space gives you the room for nailing. The holder is loosely bolted to the upright piece *C*, and *C* is securely nailed to one side of the center of the base-board 7×14 inches, and the base-board at *C* is loosely bolted through another board 5 feet long, thus making it possible and convenient to have the holder in any position while nailing. At the end of *B* is a guide, stopping the top-bar of the frame in exactly the right place; and with the button at *B* turned there is no slipping of the frame. It makes it possible to adjust a frame in an instant.



TO USE THE HOLDER.

Press down the end of the holder with *D* on until the bottom of *B* rests against the cleat next to *C*, and the extreme end of the frame rests against the cleat nailed lengthwise of the base-board. In this position nail one end of the bottom-bar of the frame, then tip this end of the holder *up* until the reverse end of the holder and the frame rest as the previous end did. Nail the upright piece to one end of the top-bar of the frame. Turn the other end of the holder to you, and finish nailing the bottom-bar of the frame; then tip *down* the end of the holder that is *up*, and complete the nailing.

Kirksville, Mo.

[It is our experience that no arrangement is needed to hold the frames square while they are being nailed; for, when the pieces are cut square and true, the nails will draw the corners up perfectly square, so that it would be practically impossible to get them wrong. We find that we can nail the frames faster without making use of so complicated a holder.

But not every one can nail up hives and frames without a form. Perhaps the one shown by our correspondent is as good as any thing that has been placed before our readers. But all factory-made frames now when put together will hold their position very satisfactorily for nailing, without any thing to hold them in place; but where frames are made at a planing-mill, without any lock-cornering, a form would be almost a necessity.—ED.]

MISCONCEPTIONS ABOUT CUBA CORRECTED.

Two Cuban Writers at Loggerheads with Each Other.

BY C. F. HOCHSTEIN.

What funny things we read in GLEANINGS! It ought to have a "contradiction department," with me its chief editor at a good salary. I will guarantee to contradict any thing and every thing under the sun. On page 652 our friend Leslie Burr puts the pamerosa as the greatest honey-plant in Cuba. I have solid miles of it, commencing within a stone's throw of my apiary. I've made three crops in this location, and I have yet to see the first pound of pamerosa honey in my hives. Although I have watched them, yet I hardly ever have seen a bee on its bloom. As to the algaroba, of which I have plenty around me, I never did see a bee go near it.

Any one reading friend Burr's article on page 714 would think that we bee-keepers here in Cuba had nothing more to do than to take off honey from Nov. 1st to the end of February, then go to slashing out the wax from March 1st to the end of October. We have some other things to do. Sitting on the front porch clipping off the interest-bearing coupons from our government bonds as fast as they become due keeps us busy a good deal of the time, and is just as easy as slashing out that wax.

I cut out all the chunks of drone comb I had in my upper stories the first part of April. Now we have nearly the end of

July; and if I were to go through my 700 colonies to-day and cut out all the wax, both drone and worker, that has been built since April 1st I'm sure I should not get 7 lbs. of wax out of the 700 colonies. And it can not be the fault of the bees either, as most of my bees are supposed to be great-grandchildren of Root's famous $200 queen, and my colonies have from 9 to 17 combs of brood per hive. If the bees and bloom will do their part, friend Burr's manangement is all right for Cuba. I agree with him in his way, excepting the spacing to seven frames. I find eight better, as, with only seven, some kinds of honey do not get fully ripened before being sealed.

Last year one of our prominent bee-keepers told me that the guasima gave lots of honey. At the same time, I had 150 colonies starve to death under guasima-trees that were just as full of bloom as they could be, and not a bee on them.

The year before, I was visiting a bee-keeper who was writing an article on the eight-months' honey-flow of Cuba, while he was feeding his bees from six to eight months of the year.

Punta Brava, Cuba, July 17, 1905.

[A part of the conflict in opinion comes, no doubt, from the difference in locality. A plant, for example, that will yield honey in one place may yield none a few miles away.—Ed.]

A VISIT AT THE SWARTHMORE QUEEN-REARING YARDS, SWARTHMORE, PA.

A Glance at the Man and his Manner of Working; John Hooker.

BY E. R. ROOT.

As announced in our issue for Sept. 1, among other bee-keepers I visited in the East was E. L. Pratt at his apiary at Swarthmore, Pa. I was accompanied by Mr. W. A. Selser, and later was joined by Mr. John Hooker at 4422 Chestnut St., Philadelphia. Mr. Hooker has for many years been one of the leading bee-keepers of Great Britain, a contributor to the columns of the *British Bee Journal*, and a personal friend of such men as Thos. Wm. Cowan, the late Frank Cheshire, and other bee-keepers of note in England. Mr. Hooker, who is residing temporarily with his son in Philadelphia, heard I was to visit Mr. Pratt, and, thinking that I might possibly be at his place on that day, had taken the trolley, with the result that we all met together in a little informal convention to discuss queen-rearing, and the Swarthmore system in particular.

A PARTIAL VIEW OF THE SWARTHMORE BABY-NUCLEI MATING-YARD, LOOKING TOWARD THE MAIN YARD.

Mr. Hooker, who has long been an admirer of the Pratt system, has been the means of introducing it to a great extent in England among his fellow-countrymen, where Swarthmore is, perhaps, better known than even in this country. But Mr. Selser and I

THE SWARTHMORE MATING-YARDS, W. A. SELSER AND JOHN HOOKER IN THE FOREGROUND.

E. L. Pratt. E. R. Root. John Hooker.
DISCUSSING BEES IN A SHADY NOOK AT THE SWARTHMORE QUEEN-REARING YARD.

E. L. PRATT AMONG HIS BEES.

had come over to see Mr. Pratt perform some "stunts" in queen-rearing, described in his booklet, which we in Medina had not been able to accomplish. One of them was to get the bees to supply the grafted larvæ with royal jelly. The *modus operandi* is so carefully and minutely described in Swarthmore's book that it will not be necessary to go into details here. Suffice it to say that Mr. Pratt gave us a practical demonstration of what he is able to do; but, surprising to relate, after seeing him do it I communicated the plan again to our boys here, but they failed to make it work, and finally went back to grafting both the jelly and the larvæ. It was so late in the season after arriving home that I did not have a chance to try it myself.

W. E. FLOWER.

Mr. Pratt's specialty is not only five-banders, but "golden-all-over" bees. He showed me some from his best breeder where the abdomens of the bees were all bright yellow except a small black tip at the very end. He was confident he could eliminate even that.

Mr. Selser reported that, on a previous visit, he found these extra yellow bees gentle; but on the day of my visit some of them seemed a little disposed to sting. As a matter of fact, our host opened his hives without veil or smoker. In opening one particular hive he aroused the ire of his pets; and then, for the benefit of his visitors, I suppose, he hunted up a veil or two that had evidently never been used, and a rattle-trap of an antiquated Clark smoker that looked as if it had not had any fire in it for something like eight or ten years. As a matter of fact, our friend does not use a smoker or veil ordinarily in any of his bee work. This will account for the dilapidated condition of his one and only smoker.

One can scarcely imagine the charm of Mr. Pratt's manner of describing his system until he hears him talk and sees him go through with some of the more difficult "stunts" that have puzzled some of his followers. Mr. Hooker told me he had visited him many a time, and that he fairly revels among his bees. He watches them by the hour; and after hearing our friend Swarthmore describe in detail his system I became thoroughly convinced there is hardly another man in the United States, if in the world, who understands the actual habits — that is to say, natural history—of the bee better than he.

His yards devoted to queen-rearing are located in the rear of some pleasantly located suburban property. I took several snap shots, and give three of them which will explain themselves. Mr. Pratt has a very comfortable rustic seat in the shade of some trees in one corner of the yard, and close to one of his bee-rooms. Three of us seated ourselves on the aforesaid seat. What did we do? Why, we talked bees, of course; and you would think so from the snap shot taken by Mr. Selser, for this was too good an opportunity for him to let go by. When I in turn desired to "return the compliment," and requested him to take my position between two of the leading lights of beedom, he stoutly protested. As may be surmised from the picture, Mr. Hooker was talking to both Mr. Pratt and myself. We have already shown views of the Pratt bee-yard; but I had retired to the back end of the pathway, looking over into the main yard just beyond, where the strong colonies are located. From this and the other picture it will be seen that the babies are located on stakes in the tall grass out in the open. The other view shows Mr. Selser and Mr. Hooker in one corner of the baby-nucleus yard. Mr.

W. E. FLOWER WITH A SWARM OF BEES ON HIS HAT.

W. E. FLOWER HIVING A SWARM OF BEES.

Selser, as will be noted, was taking notes; and, before he was aware of what was up, I had my "revenge."

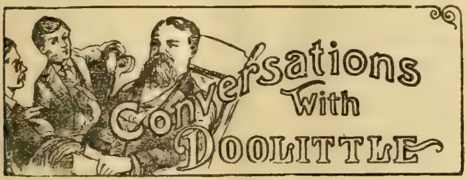
DOING STUNTS WITH THE BEES BEFORE A CROWD.

BY W. E. FLOWER.

I send you a few snap shots that were taken in my apiary on June 3, at a meeting of the Philadelphia Bee-keepers' Association. The bees were handled without gloves, smoke, or veil, and no one received a sting but your humble servant, who accidentally pinched a bee between his head and the hat-band when placing the hat, covered with bees, upon his head. The bees were from queens bought of Doolittle. The stunts were all done in the presence of thirty or forty people—men, women, and children.

Ashbourne, Pa.

[W. E. Flower is an enthusiastic bee-keeper, although his business is that of making fine edged tools. He frequently lectures on bees, using a stereopticon, and I understand that he is already booking dates for the winter.—ED.]



ITALIAN BEES, AGAIN.

"Say, Doolittle, did you notice in the October 1st GLEANINGS how Editor Root had you 'foul' on the way you mixed up 'varieties,' 'pure stock,' and 'thoroughbreds'?"

"Well, Jones, I presume it is likely I did not make matters quite as plain as I might. Probably I should have used the word *race* to give the meaning expressed by pure stock, using that word in the sense expressed by the Student's Standard Dictionary, as 'A variety so fixed as to be reproduced by seed.' I entirely agree with Bro. Root in what he says in regard to species."

"But is not that the same as Bro. Root quotes from the Standard Dictionary as 'thoroughbred'?"

"It may appear so; but my idea of *race* and *thoroughbred* is that a certain *race* will not sport but reproduce itself every time, while a thoroughbred will sport more or less, always. I do not have any thing but a copy of the Standard Dictionary for Students, which I suppose is an abbreviation of the Standard. In my Student's I read, under the head of 'thoroughbred,' 'bred from the best or purest blood.' And this is the way *I* take the matter."

"Explain a little more fully."

"Very well. Take the German (or black) bee, which I call a *fixed race*—that is, a race so fixed that it will reproduce itself every time. I have tried the matter over and over again, and any black queen of the sixties or early seventies, or before the Italian bee was introduced into these parts, would give queens like herself, *duplicates* of herself as to color, *every one of them*, no matter whether you raised 10, 100, 1000, or 1,000,000—*all just exactly alike*. Such is what I call a 'fixed race,' or 'pure stock.' Now take an Italian queen, one imported from Italy, one of the best of such an importation, and raise queens from her, and you do not have to raise ten queens before you will find that you have them varying in color all the way from a maroon or leather color throughout the whole length of the abdomen, to an abdomen striped with maroon and black, and some with the whole abdomen as black as is the abdomen of those black or German queens. If a queen giving such a ring-streaked, speckled, and spotted *queen* progeny can be called pure, or of a fixed race or type, then I am at 'open sea' in this whole matter. I call such queens thoroughbred in the sense of those words from my Student's Standard Dictionary; they are bred from the best and purest blood or stock they have in Italy."

"But you don't think that others have found so great a variation of color in the queens from imported mothers as you describe, do you?"

"If they have not, why have the prices of imported queens been made to correspond with their color? Have you never had circulars from those importing queens quoting the selected—that is, the yellowest, of them—for nearly or quite double the price of those that were the darkest, with a price about half way between for an average of the lot?"

"Yes, I must acknowledge that I have read such circulars."

"And this thing is only the bringing-up again of the 'yellow-band' matter which was so thoroughly discussed during the seventies. We were told at that time that 'no Chinese walls or snow-clad Alps' could keep the bees in Italy from mingling with other bees in the country round about these so-called *pure* Italians. It was fully proven at that time that the Italians are not a pure race, and yet the great mass of bee-keepers have gone on calling them 'pure' just the same."

"But the color of the queen progeny was not given as *the* test, was it?"

"No. It was three yellow bands on the workers. And the dissatisfaction ran so high that, to meet the same, the A B C book and GLEANINGS told how the bees from these imported queens must be placed on a window, after first being filled with honey, in order that they might show all three of the yellow bands, and thus be told from the 'two-banded' hybrids."

"That would be a good test, surely."

"Do you think so? Well, this helped me to show that the poorest specimen of these two-banded hybrids, as they were called, which showed any yellow or maroon coloring on any one of the horny scales of the abdomen would show it on *three*, if thus filled with honey and placed on a window. I have always stood out against a purity which could not be told without such a minute scrutiny, and a color that could not be told as yellow only as a full sac of honey and the golden sunshine from beyond the window must turn the maroon into gold."

"But is there not danger of getting down to too fine a point on what might be considered an unimportant matter?"

"Perhaps. Of course, all know that the color of bees should have very little to do with their desirability; for it is the queen that gives the worker bees that will give the best *results in honey* that the practical bee-keeper is after as the most *desirable* bee."

"I think that is right."

"Undoubtedly it is. But we have been taught for the past third of a century, and with greater emphasis, if possible, to-day than ever before, that the Italian bee is *just the bee* to give the best results in honey, or is the most desirable for honey."

"Don't you believe it?"

"Yes. But how is any purchaser to know whether the queen he receives is Italian or not?"

"By the markings of her worker progeny."

"Yes. But what are these markings to be? 'Oh! any thing, almost, so long as they are good workers,' was the answer given by one who advertised and sold hybrids as the best working bees. But the public was not satisfied with this thing, and again demanded something tangible to go by when they were buying Italian bees and queens. And so we are brought back to the *markings* of the Italian bee as a starting-point when we are buying the most desirable bee on the earth."

"Yes, I see. But if they are only a thoroughbred, and given to sporting, what difference does it make?"

"If we could be sure that all grades of hybrids would be just as good workers as the bees from a queen whose worker offspring showed three bands or more, then this matter of markings would be an unimportant matter; but when you come to consider that, the further off toward the black we get from the three bands, the poorer the bees average for honey, then these markings change from an unimportant matter to one of much importance. The queen trade is assuming gigantic proportions, many queen-breeders reaping two or three times as much from their queen-trade as from their crop of honey; and once let the practice become common of selling 'almost any old thing' to the customer, instead of striving for the *very best bee in the world*, and the queen trade will be a damage to apiculture instead of a help; and, if I see aright, we can not be certain of this best bee only through its markings, even though the markings be that of a thoroughbred."

Heads of Grain from different fields

QUESTIONS.

As it's a long call to Medina I trust you will pardon the number of questions.

1. Can you throw any light on why bees (wild ones) captured with sealed brood during scarcity of pasture turn upon the brood when hatched out, and swarm?

2. Will you let me know the average difference in price between comb honey and extracted?

3. Can 4×5 plain sections (Danz.) be used in an extractor?

4. Will brass fittings, such as a tap in a galvanized bank, taint honey?

5. When Danzenbaker, regarding control of swarming, p. 40, Facts about Bees, says, "Place them with the queen and all her bees in a *new* body on the old stand," does he mean it must be absolutely a *new* hive, or will a clean second-hand hive do?

Ubambo, S. Africa. ZULULANDER.

[1. I am not sure that I fully understand your first question, where you inquire why captured colonies during a scarcity of pasture "turn upon the brood when hatched out." If you mean larvæ just hatched from the eggs, then I would say when there is a scarcity of food they will destroy the brood, because they must eat the food given to the larvæ in order to survive. If you mean that the brood is destroyed when it hatches out into young bees—that is, the young bees are destroyed — then I can give you no solution to the problem.

2. Comb honey varies in price according to the markets; but in this country it sells from a third to a half higher than extracted. In some cases it sells for twice as much; but that is when the comb honey is extra fancy.

3. The 4×5 plain sections can be used in an extractor.

4. Brass fittings on a galvanized tank would have no appreciable effect on the honey; but honey left for any considerable length of time in a small galvanized vessel will absorb some of the zinc, giving it a bad flavor.

5. In the method for swarm control mentioned in Danzenbaker's book, either a new or second-hand hive will answer the same purpose.—ED.]

INCREASING THE CROP OF HONEY AND CONTROLLING SWARMS BY REQUEENING.

I have discovered a method by which I get large crops of honey and no increase. Let me say the plan is applicable only for those who can be in the yard all the time during the swarming season.

Have the queens clipped, and when the

swarm comes off destroy the queen and allow the swarm to return.

When that colony casts another swarm it will, of course, have a virgin queen, which will settle on a limb low down, if they do as well-bred bees should. Now open the hive and cut out all queen-cells and return the swarm to the parent colony, and the job is done. It answers equally well when working for comb or extracted honey.

Why I like the plan is, first, I have all young queens, which I think quite an advantage, both for summer and winter; second, the bees are no longer queenless than they would have been had they swarmed naturally without manipulation; third, they will not swarm again that season — at least, not in my locality. This I say advisedly after a four-years' test.

Perhaps you don't want to destroy all your clipped queens. If not, here is your opportunity. Cage your clipped queen and fasten the cage with the queen on the end of a stick about a yard long and hold it near the entrance when the swarm is returning, till you get what bees you want, when they are taken to your nucleus. Every bee will stay where they are put, as they have swarmed naturally and have their queen with them.

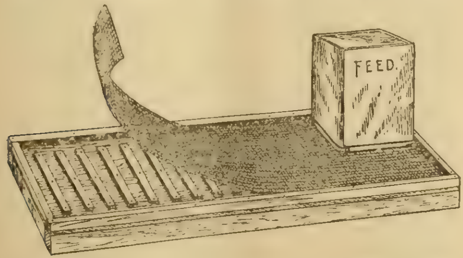
J. M. CRUICKSHANK.

Aylmer West, Ont., Can., March 11.

[There are a few bee-keepers who advocate requeening every year; but the majority think that every other year is often enough. There is a possibility, however, that year-old queens might be enough better to warrant the change, if not for the reasons urged in your letter.—ED.]

AN OUTDOOR ATMOSPHERIC FEEDER.

I notice that you want to find a perfect outdoor feeder, so I will give you a description of one that is in general use here, and which I think is the best feeder that I ever saw. I have been using it about eight or ten years, both to stimulate to have bees strong at the beginning of a honey-flow, and also to feed for winter stores. I put one part honey to six or eight parts water to start with, and gradually increase until I have equal parts of each, which I think is about right for winter stores, but I think less is better when you are feeding to stimulate. To make the feeder, take two twelve-inch boards about five feet long; three pieces 2×4, two feet long, set up edgewise, on which nail these plank which are to be the bottom of the feeder; then nail a piece about an inch thick and 1½ inches wide on all four sides of this bottom, which is to form a trough, in which put strips about half an inch thick and one inch wide crosswise of the feeder and about two inches apart, and within one inch of the sides of the feeder. This space between the strips and the sides of the feeder is to allow the feed to run down to the other end of the feeder from the can. Of course, there could be some grooves cut out on the under side of these strips, which would answer the same purpose and would probably be better. Over these strips tack wire gauze, which is to keep the bees from getting into the feed. I generally use a little wax in the cracks to keep the feeder from leaking. Now just take a sixty-pound honey-can, filled with water and honey mixed, and invert it on this feeder; put the can in one corner of the feeder, and have two sticks half an inch thick to put under the edges of the can that extend over in the feeder, so as to keep the bees from getting under the can, as they will crowd under there so thick that a lot of them will get drowned.



Uvalde, Tex. W. D. BUNTING.

[Your feeder would work very nicely; and the only objection I could mention would be that it lets the bees feed too fast; and, moreover, they would struggle against each other on the wire cloth until they would wear each other out.—ED.]

BEES HUNTING A SUITABLE PLACE BEFORE SWARMING.

I saw an account of bees going out and hunting a place to occupy before they swarm. I have seen two cases where it looked very much as if they had located or found their new home before swarming. One went into an old building. For two or three days they seemed to be cleaning house, as they threw out particles of plaster before the swarm came. The second instance was of a swarm in a granary. The bees flew from the granary to a hive, back and forth, and finally located in the hive. They went to the hive very much as if they were working. What is your idea? Did they find these places before, or is it a usual thing?

Shannon, Kan. R. L. VAN HORN.

[There can be no question that bees very often select a new home before swarming. There have been a good many cases on record like the ones you describe.—ED.]

FEEDING AND WINTERING BEES.

I commenced bee-keeping last spring with 25 colonies. I now have about 50, after losing several swarms at swarming time. I should like to get some pointers, as I am a beginner.

1. How soon should I commence feeding late and weak colonies?

2. I have a dry cellar dug in loamy soil in a valley. Steam heat for dwelling above comes in through the cellar at one end; is 24

×60 ft., partition in center; three small windows in end where steam heat comes in; one small window in opposite end. Would the cellar be a good place to winter the bees? Which end of the cellar would be better?

3. About what time should they be put into winter quarters; give best way to arrange them, and any hints you think best for beginner.

4. Is table oilcloth as good as carpet for inside cover between hive-cover and frames?

Williamsport, Pa. MORRIS R. SAYER.

[1. If you have not already fed your bees, it may be too late to do so this season. Bees should ordinarily be fed in September, if they lack stores. They can be fed in late fall if weather will permit; but in this case the syrup should be thicker than one part of sugar and one of water; that is, two of sugar and one of water. If you select a warm day one big feed can be taken down in a single day and night; but even then it is better to give the syrup hot, but not so hot but you can bear the hand in it. This the bees will take down much more readily than cold syrup.

2. The cellar you describe, using the compartment opposite where the windows and the steam-pipes are, would make an admirable place for wintering bees, providing the temperature does not at any time go above 50. It should be dry, and capable of ventilation from the steam heat side, providing such room does not get too warm. In that case I would open the one window at night and close it before morning. Keep this window darkened during the day. A *dry* well-ventilated cellar, where the temperature does not go above 50 nor lower than 40, makes an ideal place in which to winter bees. The nearer you can come to securing these conditions the better.

3. This will depend on the locality. In the vicinity of Medina we put our bees in about Dec. 1. This is along about the time when we begin to have good solid freezes and one or two good snowstorms. In some localities the middle of November will not be any too early. In others, Jan. 1 will be soon enough. The longer that bees can be kept out of doors without too much exposure the better.

4. Table oilcloth will answer an excellent purpose; indeed, I should prefer it to any other material.—ED.]

A TREE FOR AN OUTDOOR FEEDER.

For an outdoor feeder could you make any thing that would be better than a well-branched tree? Spread oilcloth under the tree as far as the branches, and then spray the tree. I have not tried it as I have no sprayer, but I believe it would work.

Omaha, Neb. GEO. H. PLACE.

[I am not sure but your suggestion has considerable merit in it. If the tree were very bushy and low down, I hardly think it would be necessary to spread any thing under it. The syrup should be thin, and evenly spread with a force-pump. The only objection to the plan is that the feed will be liable to dry on the leaves before the bees find it. If that were the case, the tree might be sprayed with clear water to moisten up the residue of sugar.

Your plan would have the distinctive advantage that there could be no scrambling on the part of the bees. If a row of a dozen trees or so were sprayed in this way with very thin syrup, the whole bee-yard could be made wild with delight. One tree, however, would be enough to keep robbers busy so that one could work with some degree of comfort in extracting if he so desired.—ED.]

HOW TO AVOID THE LITTER IN UNPACKING WINTER CASES.

I have just read the foot of the second column, page 1010, about the litter in unpacking. When I bought winter covers for my two hives I put them together and "tried them on," and concluded there must be *some* way you had for avoiding clutter in the spring. Having no one to instruct me I figured it alone. I tacked burlap all around inside the bottom of the case, set it over the hive, and filled the burlap bag with cork chips. Next spring I had no trouble nor clutter lifting the *whole* off by lifting on the top of the burlap *bag*. Case and chips came right up. I had not enough chips for my second hive, so I stuffed newspapers *equally* all around the hive, using them folded just as I brought them from the pile in the loft. On top (both hives) I put a super with a *loose* bag of cork chips that made a layer three inches thick. To the best of my knowledge not a pint of bees died in the winter or early spring. I have always used chips since, because I supposed them better than paper. N. A. SPARHAWK.

Boston, Mass., Oct. 13.

UNOCCUPIED BEE RANGES IN ALABAMA AND MISSISSIPPI.

Mr. Root:—The enclosed clipping is from *The Seaside Whistler*, published at Bayou La Batre, Ala., and I should be glad to see it reproduced in GLEANINGS.

W. D. SOWELL.

Brewton, Ala., Sept. 26.

I have received many inquiries as to my success in the production of honey at Bayou La Batre, and am now in a position to state that I have more than realized my expectations. From 54 colonies of Italian bees I have taken 3294 pounds of honey, spring count, making an average of 61 pounds per colony.

By controlling swarming I can far exceed this average another season, and I find that I can get a considerable quantity of honey during September and October that I had not expected of the range. There is a tall weed here that at this writing, September 20, is in full bloom, and my bees are storing much honey from it. It has a small white bloom which is very fragrant, and yields nectar equal to tite or gallberry, and there are hundreds of acres of it in reach of my apiary. I have never seen this weed anywhere else, and am ignorant of its botanical name, but will soon get the information by sending a sample to the Department of Agriculture. Besides this weed there are other wild flowers that produce nectar in the fall season, making this an excellent bee pasturage for fall storing of honey. The greatest yield here is obtained from tite and gallberry in early spring, and the quality of the honey produced is of the highest grade. There is a vast unoccupied territory for bee-keepers in Alabama and Mississippi, and, apart from the pleasure derived from the pursuit, the remuneration is satisfactory. Bee-keeping is fascinating to one whose heart is in the avocation, and one must love his bees to make a success of the business; and every progressive bee-keeper realizes the benefits to be derived from taking at least two bee-journals and reading the standard bee-books. There is no place more delightful for bee-keeping than the coast country of South Alabama. We not only have the bee pasturage, but, besides, we have fish and oysters in abundance, a lovely climate all the year round, where the winters are mild and the summer heat is tempered by the refreshing sea breeze that is so pleasant and invigorating "in the good old summer time." **OSCAR S. RUSH.**

COMB HONEY ATTACHED TO FENCES IN SUPER.

Would you be so kind as to give me a little advice on the following? On the 1st of June I put into a Danzenbaker hive a good-sized swarm. I examined it to-day. The bees have almost the 32 sections capped over except the two outer rows of cells; but they have connected the sections and the fences with lumps of comb so that, when I take out a section, that lump of comb tears off, leaving a bad scar on the section of honey, which starts to ooze out. The lump of comb sticks to the fence. I gave them another super with sections, and put it between the brood-chamber and the filled super. Was that correct? How can I remedy the other sections that are glued to the fences? Would it be a good idea to take all the sections out that are glued to the fence, clean the fence, put it all back on the hive, and let the bees repair the scars on the sections? Would the bees glue them back again, even now, while they got more room to build comb in the other super? **H. STOCK.**

Augusta, Mo., Aug. 12.

[In rare instances we have had reports something as you describe, and I can only lay it to a tendency in the particular strain of bees to make such comb attachments. Such bees will build brace and burr combs in the brood-nest in profusion. A year or so ago a correspondent reported that there was just one colony in a hundred that he had that would do this. Thinking the difficulty came from that strain of bees he requeened, and the following year he had no further trouble. But there are other conditions that may cause the bees to build these combs—that is, a crowding of the super unnecessarily. When they have jammed every thing full, and still lack room, they will be pretty sure to chink in wax in any old place. We can hardly say the fence separator is more inviting for these comb attachments than the old-style separator, for comb attachments have been made on the latter just the same.—ED.]

THE LAST VIRGINS WILL SOMETIMES GO OUT WITH THE SWARM.

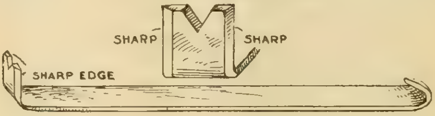
In regard to last virgin queens leaving hives with swarms, page 775, I will give some experience. Three years ago I killed the queens in about 75 colonies to prevent swarming. After the brood was sealed I cut out every queen-cell but one in each colony. From the time the queens hatched till they began to lay, about a third swarmed and had to be rehived. In no case could I ever find any signs of a queen in the hive they left. To be quite sure, I did not return the swarm to several hives, and *invariably* they were found to be queenless. I have had experience other seasons to confirm the conclusion that last virgin queens will sometimes swarm. While the season was abnormal for swarms, there was nothing abnormal about the hives. There was an eight-frame brood-story with an excluder, and from one to three eight-frame L. extracting-supers above it, all mostly in the shade. **C. G. LUFT.**

Forest, Ohio.

HIVE TOOL MADE FROM A SKIMMER-HANDLE.

I send you a tool which is of great usefulness to me in the removal of propolis from edges of end-bars, tops of frames, and almost all places about a hive. It is just right to loosen the frames and draw them to you. I can very easily clean the frames as they hang in the hive, or when I have them out. I can do the work quicker, better, and easier than with any thing else I have ever seen or heard of. I made this from the handle of an old skimmer; and the more I use it the more I am convinced that it is as near right in size, weight, and length, as I want. **FRANK McGLADE.**

Pataskala, Ohio, Aug. 2.



PRIORITY RIGHTS TO LOCATION.

One of my neighbors wishes to make a start with bees, and I have agreed to give him bees and queens to start five hives. The fact that he is near my bees makes no difference with me. I disagree with Dr. Miller. I do not believe that I have more right to the flowers of the surrounding country than has my neighbor, even if I *have* got the first start. **H. J. ISMON.**

Trinidad, Cuba, June 19.

If a strong colony should be shaken on starters, and a super with full sheets of foundation in sections be given, would the queen lay in the sections?

Rushville, Ind. **H. B. WILSON.**

[Not unless the foundation in sections had been drawn out, and probably not then. It takes a good deal of forcing to get a queen under any circumstances to lay in sections. —ED.]

Try outdoor feeding in as large a receptacle as a hive, using a float and one or several entrances connected to a bee entrance, and several with the entrance the same as to a hive. I have used this more or less for several years. **G. F. AYRES.**

Atherton, Ind.

UNITING IN THE FALL OR SPRING.

I have at present 9 colonies bees in Danzenbaker hives, and do not wish that the number kept should at any time exceed 10; consequently I shall have to double up and reduce down to 5. Can you advise me when is best to do this, and if best to kill off poorest queen *in fall*, and put the colony over a bee-escape and a colony that has proved productive? It seems to me impossible that a Danzenbaker hive-body could hold the bees combined in two if united in the fall and both fairly strong.

On the other hand, would you advise wintering all separately, and uniting them in spring when brood-rearing begins? The bulk of clusters would then be materially reduced, and it should not be difficult to unite then as compared with fall, as I find it is no joke to open a colony in fall, hunt out a poor queen, etc., as the bees are mostly old, and equal to a good fight on slight provocation.

Another question, do you deem it necessary to hunt up the queen and kill her if united over a bee-escape? Would the colony below kill her off as she descended, in any event, or would there be a risk of losing the *better* queen in the lower hive?

I trust the issue is made plain. We must reduce down to five, and then hive new swarms in hives emptied by doubling; but it is hard to conceive of a single brood-body containing two colonies at fall strength.

It has been a doubtful question whether to winter each on its own stores, or double in fall. One thing is certain — the honey kept in brood-frames deteriorates, or is often of poor quality, and this is rushed up into sections in supers when a strong swarm is hived on the same, say in May or early in June. This has been my experience this year, and has led me to ask if all had better be wintered on their own stores.

E. O. ORPET.

South Lancaster, Mass., Aug. 22.

[Ordinarily the best time to unite bees is after cool weather has come, when there is not very much if any flying. If the bees are to be put in the cellar, a good time to do the work is a day or so before putting them in. When uniting we always advise selecting out the poorer queen and killing, for, as a rule, there will be a choice beween the queens. If there is no such choice, unite the two colonies and let the bees do the work of selecting. Ordinarily there will be no difficulty in uniting a colony in a Danzenbaker double brood-nest down to one section—particularly so after cool weather sets in.

If a bee-escape board is placed between two clusters of bees, each having a queen, each cluster would show a tendency to stay with its own queen, but the cluster in the upper section would constantly grow smaller, and in the end the queen would be left alone. Yes, one *could* unite with the use of the bee-escape if he thought that plan more convenient.

Referring to your last paragraph, where two colonies are weak it is *always* advisable to unite rather than to attempt to winter them separately.—ED.]

WHY DOES MY COMB HONEY SOUR PREMATURELY?

Can any one tell me a safe, sane, and sure way of keeping comb honey so that it will not sour? I have the same trouble every year. It does not seem to make any difference whether the honey is taken from the bees early or late, some of it is sure to sour. I took off a super having every cell capped completely over, June 15, four years ago. Within one week it was so sour I had to throw it away. Last year I took off a large box, perfectly sealed. It kept well until January, then became intolerably offensive. This year I removed from the hive, August 7, six frames of comb honey, every cell of which was sealed. These frames were allowed to remain in a clean super, in a room on the second floor of my residence. To-day I find three of them reeking with sour honey. The other three, and one other frame taken from another colony, and with more than half the cells unsealed, show no signs of souring.

I have always kept my comb honey in the second-floor rooms of our house. The temperature is agreeable and very uniform; nevertheless my honey sours. Can any one offer an explanation, and give me any advice? I would say, also, that I wrap my pound sections separately in clean paper. The frames I cover thoroughly, top and bottom, in the supers, with paper; but still many of them sour. PERPLEXED.

Altoona, Pa.

[Honey from some sources has a tendency to sour soon after it is gathered. The honey you mention is probably of this character. There is nothing you can do except to quit producing honey in sections and run for extracted. It may then be heated to a temperature of 160, with probably beneficial results. The acid tendency would be checked, and the honey would probably be kept sweet, provided, of course, it were sealed after heating, either in tin or glass.—ED.]

HIVING SWARMS WITH A LOOKING-GLASS.

When my bees start for parts unknown, if I am not at home some of my folks procure a looking-glass, about 12×12 inches, if bees are just coming out; but if they have a start, get a large glass, about 20×24 in., or both. If it is convenient to have a hive a short distance from the old stand you can lead the bees to it, and hive them without any trouble and without killing a single bee. We take the glass in both hands, and give it an irregular motion. This gives the reflection of the sun on the bees a constant movement. While doing this, gradually bring your reflection closer to the hive or place for them to settle. By this means you can bring them on bushes or weeds, and then you have a very easy time hiving them. I have done this way ever since I found it out. But remember you must keep the reflection of sun from the glass in a slow but constant motion on the swarm, and gradually bring to the ground, hive, bushes, or any thing. The large glass will do when your swarm has the start of you. It will reach further, and, being a larger glass, it will bring the bees closer together. The only reason I see for this means of settling is that the bees think it a storm coming. Try it and be convinced.

Joplin, Mo. ED. H. SUPPE.

[I have always supposed that the use of a looking-glass for hiving swarms was almost as useless as tanging on tin pans; but as you describe the use of this familiar household article, there may be some "science" about it after all. I know this, that I can drive a swarm of bees with a spray of water as I would drive a flock of sheep with a good whip; and I can induce a swarm to alight on almost any selected spot. If this same thing can be done with a looking-glass, it will have the advantage over a spray-pump, as it would be instantly available and very easily applied. I have never doused the bees without being doused myself more or less. I must confess it is something of a surprise that a looking-glass has any effect at all. I should be glad to hear from any of our subscribers who may have tried it.—ED.]

FREEZING QUEENS TO MAKE DRONE-LAYERS OF THEM; WHEN DOCTORS DISAGREE, WHO SHALL DECIDE? ETC.

In the report of the Chicago Northwestern bee-keepers' convention in the *American Bee Journal* for July 13, I see your experiment of freezing queens. Wouldn't it have been better to try some old queen along with the young ones? I see in June 15th GLEANINGS G. M. Doolittle does not make it a practice to supersede his old queens, while E. W. Alexander, in July 1st GLEANINGS, thinks otherwise. When such men as Doolittle and Alexander do not agree, how will anybody who does not know very much about bees know what to do?

I should like to ask a few questions.

What time in the fall or winter do queens quit laying?

Do old queens quit laying any sooner than young ones?

If old queens quit laying sooner in the fall than young queens, would a colony with old queen and bees stand as good a chance for winter as a colony with a young queen and plenty of young bees?

At what age is a queen at her best in laying? N. R. WHITE.

Nelson, Mo., Aug. 1.

[In the experiment of freezing queens referred to, we tried both young and old, without being able to make drone-layers of either.

As between Mr. Doolittle and Mr. Alexander, if I were called on to decide I should say that the latter is probably more nearly right for most conditions affecting a honey-producing yard. Why? Because the majority of the large honey-producers have either declared in favor of or are practicing requeening every two years, and some as often as every year. Mr. Doolittle is a honey-producer as well as a queen-breeder, while Mr. Alexander is almost exclusively a honey-producer. It can not be denied that there are some queens whose usefulness would extend beyond the two-year limit, especially if they should be reserved for breeders.

The time when queens quit laying varies according to the locality. In most places it will be some time in September. If there is a late fall flow, egg-laying will be stimulated, of course; but where there is no fall flow there will not be much brood-rearing after Sept. 1.

Yes, old queens will quit laying sooner than young ones; and a colony with a young queen will for that reason stand a better chance of wintering than will an old one. This is one reason why it pays to requeen at least once in two years, and in some localities every year, because there will be more brood with a young queen, as a rule, than with an old one. More brood means more bees. In proportion as one colony is stronger than another, in that proportion its chances of wintering well are better.—ED.]

CONTROLLING THE INCREASE BY THE USE OF A PORTER BEE-ESCAPE.

What objection, if any, to the following? Have you ever tried it?

I have some bees working in top sections, and I do not want them to swarm; but they do swarm. This old hive we will call No. 1. I hive the swarm in the usual way and place the new hive, No. 2, by the side of No. 1, both facing the same way. When all are settled I put on a Porter bee-escape at the entrance of hive No. 2; and as they pass out to secure their honey, and return, they find the door of their new home for ever closed, and will immediately return to the old entrance and re-enter their old home. In hive No. 2 you will find the queen and a few bees, but you have accomplished your object, and have all the bees in No. 1. But surely a method so simple as this has been used by you, and I simply ask for the objections.

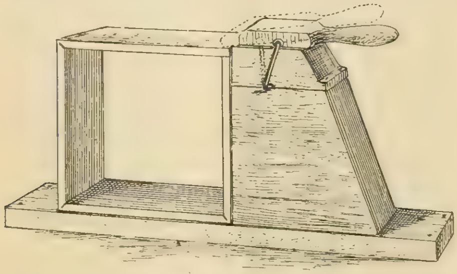
C. B. PALMER.

Bradshaw, Neb., Aug. 10.

[It is possible that the plan you describe has been mentioned in these columns, but I do not distinctly remember it; at all events, I do not see *why* it would not work under some conditions. Perhaps some of our subscribers who have tried the plan will be able to give us a report of it. If it has been described before, please point out the reference. In all the maze of methods that have been mentioned within the last twenty years it is difficult for your editor to discriminate in every case between the new and old; and he will, therefore, be free to call on his subscribers at times to help him out.—ED.]

A PARKER FOUNDATION-FASTENER USED AS SECTION-PRESS.

The sketch below shows how I arranged my Parker foundation-fastener to put sections together. It is raised up on blocks the height of a section. To use, fold the section; put it in front of the machine as shown above; push the lever forward and raise it, pressing the section together, then use as we do to put in foundation, then put in the super. J. E. HAPPING.



Stuttgart, Ark.

[This is a very ingenious adaptation of the Parker foundation fastener. It looks as if it might work.—ED.]

QUERY ON THOSE "UNDERSIZED YELLOW BEES" IN MEXICO.

Are they not what are usually called yellow-jackets? My experience with yellow-jackets in Ohio, here, and also in California and Mexico, leads me to believe that those "little yellow bees" are nothing more than the genuine yellow-jackets that build their nests as described by Mr. Jefferson; and as to their vicious habits, I can fully corroborate as one of a company who went with me to California in 1849 thought he would see if those "little yellow bees," as called by Mr. Jefferson, did not have some honey in their nice little home on a bush. The result was that he got stung so badly it sickened him for two weeks, and he was obliged to abandon his quest for honey; but they were the genuine vicious yellow-jacket.

On my return from California we landed at Mazatlan, Mex., on the Pacific, and came through that country to the Gulf of Mexico on account of cholera on the isthmus, and we found the same kind of yellow-jackets quite plentiful there. We could see their nests on bushes beside the road. If they make honey and comb whiter than common bees, why not introduce them into the bee family as distant relatives?

JESSE GREEN.

UNITING, AND PREVENTING SWARMING.

How would it do to unite two colonies of bees in the following way? Put one on top of the other, leaving a queen in each, and put a wire cloth between them, leaving an entrance to both top and bottom brood-chambers until next spring, say about March 15 to April 1 (according to the season), then close the top entrance and take off the wire cloth and put on a queen-excluder, which will allow the bees that are in the upper chamber to pass down through the lower one and out at the bottom entrance? At the same time the excluder will prevent the queen from coming in contact with each other.

About April 1, which is about the time our bees begin to swarm, take all of the old comb out of the bottom chamber and give them full sheets of foundation (or starters), and *all* the bees from both chambers (and one queen), leaving them on the old stand, and in one to two days give them a super or two if necessary. Now take ten of the old combs (I use Danzenbaker hives) that have the most unhatched brood and eggs, and give them to the other queen, moving them to a new stand, and in seven to ten days shake all the young bees from the old combs off in front of the colony on the old stand. By this method, would I not have pecks of bees instead of gallons, to be storing the early and best honey in the super, and at the same time the queen on the old combs would be building up? And, furthermore, would not this manipulation prevent or at least retard swarming? Honey stored by the bees after July 15 is very bitter with us, being gathered from a yellow weed called "bitter weed;" and while it yields an abundance of honey it is worthless except that it is fine for the bees to winter on. So you see I have got to devise some plan by which I can get the early honey *or* give up bee culture.

Florence, Ala. J. H. YOUNG.

[If I understand you, I think your plan would work. The hitch might come when you substituted the perforated zinc for the wire cloth. At all events, try it and report. —ED.]

BUCKWHEAT HONEY AND THE CIRCULARS FROM THE HONEY-PRODUCERS' LEAGUE.

I have distributed a great many of Dr. Miller's leaflets on honey, but do not quite like his description of buckwheat honey—too much of a one-sided view of the matter. Tastes differ, so do markets. But the circular of the new Honey-producers' League is much worse. Only a semicolon between buckwheat honey, "very dark," and the honeys that are ill flavored and not fit for market. Do you think every one will note the meaning of that pause? I do not. But, even as it stands, this description classes buckwheat as just fit for the market.

Now, I have been in the bee business only three years, but have already sold honey to go to Chicago, just because it was buckwheat; and just now I have an inquiry from a gentleman in Kansas City, Mo., who says, "I want the genuine buckwheat honey, in the comb, for my use, and also to show some friends, who never ate or saw any, what the honey of honeys is." Of course, I do not claim that this description should be used in the circulars; neither should they stand as they are. To describe any honey as *very dark*, and let it go at that, is to give the impression that it is very inferior. The color of buckwheat honey is much like that of the choicest preparations of fruit. Its flavor, where known, is as popular as any, and it excels, perhaps, all other kinds in making white comb. I am well aware that no unfairness is intended; but there is a mistake which should be corrected. In the circular it could be done by leaving out four words. The description is unnecessary. WM. A. STEWART.

Elkin, Pa.

[I have looked through both the honey-leaflet and the Honey-producers' League, but I do not get the impression in either that buckwheat is unfavorably or unfairly presented to the public.—ED.]

OUR HOMES,

BY A. I. ROOT.

At the same time came the disciples unto Jesus, saying, Who is the greatest in the kingdom of heaven? And Jesus called a little child unto him, and set him in the midst of them, and said, Verily, I say unto you, Except ye be converted, and become as little children, ye shall not enter into the kingdom of heaven.—MATT. 18:1, 2, 3.

On p. 1035, Oct. 1, I told you that toward a dozen big broad-shouldered men had united with that little church. A weekly prayer-meeting was started promptly, meeting every Wednesday night; and those big men, as well as the women and children, are on hand promptly at every meeting in a way that we do not often see in the old established churches. It is now potato-digging time in the Grand Traverse region, and men, women, and children are working every hour when it is daylight, and it does not storm, to get in their crops. The prices offered are better than usual. When night comes, as a matter of course the people are all too tired to think of going to meeting—that is, if such excuses were to be tolerated at all. As there are a good many chores to do after it is too dark to handle the potatoes, the meeting time is fixed at 8 o'clock. Now, I was going to say these good *people;* but I think I will change it and say these dear *friends* of mine (and I thank God from the bottom of my heart that they *are* my friends) are not only on hand—men, women, children, and babies too, but they all take part—the babies sometimes without invitation, but it is all pleasant and harmonious for all that. "Harmonious" does not express it. They are a band of God's people. I am dictating this Home paper while I sit here in Medina.

But just four evenings ago one of those big broad-shouldered men was appointed to lead the meeting. It was such a remarkable change for one who had always been diffident, and preferred to keep a little in the background, that there was some smiling among the rest of the members to see that big stout fine-looking young man stand up before the audience. His very first words drew my attention toward him, and I guess the hearts of all the people, because they were so honest and straightforward. He acknowledged that he was embarrassed; but he said that in this new life of his the Lord Jesus Christ was to be the master and he was to be the servant, and therefore when he was called on to lead he did the best he could, and trusted to the Lord for the outcome. He read the fore part of the 18th chapter of Matthew, from which our text is taken. As I sat near him he asked me to make a little explanation of what I understood by becoming "as a little child." Now, before I tell you my answer (and I do not know that I need to tell it at all), let me say I listened more intently to his reading and to his every word than I usually listen to any speaker, and I feel sure that it was much the same with the rest of the audience. We knew it was hard for him, and we were all praying that he might have strength and wisdom from on high. For the first time in my life, although I have read that chapter many times, I noticed that it was the *disciples* who asked the question who should be the greatest in the kingdom of heaven. They were ambitious, and perhaps selfish. Mark tells us that they came to him begging for the highest honors, asking him who should be on his right hand and on his left when he received his kingdom. Jesus, in his answer, said not one of them; nobody, in fact, shall enter the kingdom of heaven unless he first becomes as a little child. In my talk I asked if I was correct in inferring this was the first time Bro. Boone had led the meeting. He replied, "Bro. Root is right. This is the first time I have ever led any meeting of any kind. I never before stood up before any body of people to speak, and, to tell the truth, I never even read a composition nor spoke a piece in school, because I was too bashful. I am bashful still, and very much embarrassed; yet I am going to lead this meeting the best I know how, notwithstanding my embarrassment, and I want you to pray for me. If I understand the words of our Lord and Savior, he meant that big and strong men in business and everywhere else should be as innocent and honest and as unselfish as a little child who has not yet learned the *difference* between what belongs to the child himself and to other people. We should be as fair and square in our deal as if every transaction were between parties in which neither one had any interest whatever. We should try to *do right*, keeping in mind at all times that the loving eye of the great Father above is constantly over us and watching us. We should do our duty before God and before our fellow-man whether we feel like it or not, just as I am trying to do my duty here to-night in standing up before you."

Of course, these were not his exact words; but I am sure when he comes to read this he will excuse me if I have not given it from memory just as he said it.

Now, friends, while he was speaking I was wondering if it were beyond the possibilities of the future to expect that we might have such men as he is, or, perhaps I should say, such a man as he described, to hold the important offices in the affairs of our State and nation. I shall have something more to say on this subject; but before doing so I wish to mention that, when he suggested we should all kneel in prayer, almost every one in that little church knelt, and on bended knees took part in prayer. While we knelt in prayer many broke forth in a verse of some of the beautiful hymns we had been singing; and after we arose there were testimonies all around as to how each and every one was progressing in the Christian warfare. Many said they felt too tired to think of going to meeting when the time for meeting came; but they all united in declaring they felt rested, and were refreshed, and were glad that they came. In several prayers my name was mentioned, and they gave me more credit, I am sure, than I deserve. Oh, how I did thank God that it was my privilege to have a part in building up that little church off there among the hills that seemed to me then, and seems to me now, as I think of it as a glimpse of heaven here on earth! It made me think of the description of Pentecost in olden times.

After the meeting was over they asked me to write letters to them that might be read aloud to all the members of that little church, and they promised to give me regular reports of the progress.

As the snows are very deep there in the latter part of winter, a good many times, these big stalwart men promised to make paths for the women and children to go to church. The schoolhouse is opposite the church, so that these paths and roadways will be needed as much for the schoolchildren as for the church.

Now, friends, suppose that little church in its unselfish devotion and loving relations among its members were enlarged so as to include the whole United States.* What would be the effect in doing away with the shameful scenes of trickery and fraud being unearthed from day to day? I suppose we must have penitentiaries and jails and workhouses for a while at least; but, dear me! how much better it would be to convert these sinners to the Lord Jesus Christ before they get bad, and let the *love of Christ* be the constraining power instead of prison walls and manacles of steel!

I have been teaching a class in Sunday-school, as you may know, all my life—at least all my religious life. May God forgive me for those wasted years in the early part of my life. Well, I have plead and prayed for many a boy, and I have watched them in after-years and rejoiced to see them grow up in godliness and purity to serve their fellow-men. I do not know why it is, but almost always the superintendent for some reason has assigned me a class of boys in their teens. Sooner or later the boys drift into my care or else I drift around to preside over them, and in some way or other it seems as if the great Father so managed that the uneasy and sometimes unruly boys should be put in my charge. I have sometimes thought it something of a hardship; and then, again, when these same unruly boys became steady, sober, faithful church-members, I felt glad that it had been my privilege to work and pray for them. Well, years ago there was one particular boy in my class who seemed to take delight in propounding strange questions. I thought sometimes, too, he asked those questions just to bring out a discussion. That boy set me to thinking, and I do not know but he set me to praying more than any other boy in my class. He finally turned his attention to literary work, and quite early in life furnished some articles for the papers that attracted a great deal of attention. He startles people by doing unexpected things, and several times I have congratulated him and told him I felt proud to see one of my old pupils coming out so boldly and taking an advanced step in the great needed reforms of the day. One of my happy surprises in this line was when I got hold of a copy of the Medina *Gazette* (of which this boy is now editor) away up in my Michigan home, a few days ago. An editorial in this I am going to copy here. If any of you may suggest that this matter pertains particularly to the State of Ohio, I wish to reply that it hits all of us, for there is much the same state of affairs in every State in the Union. The matter touched on is of so much consequence that there is not the shadow of an excuse for claiming that it is out of place in a bee journal. *Every periodical in our land,* no matter what sort of industry or class it represents, should be ready to open its pages when the thieves and midnight assassins are at our very doors. Now read the following, and see if I am not right about it.

WHY WE BOLT HIM.

The name of Myron T. Herrick does not appear at the head of the Republican ticket placed in our columns to-day, and its omission is not unintentional. It means that the *Gazette* can not support Mr. Herrick for governor, however much it dislikes to be in opposition to any Republican candidate for office. And when a party paper that has unswervingly supported all the candidates of one party for 50 continuous years believes the occasion has arisen to refuse its support to one of its party's candidates for a great office, that paper should have good reason for its action, and declare such reason fully, honestly, and fearlessly—and this we purpose here to do.

Mr. Herrick's second nomination was at the dictation of a disreputable boss in Cincinnati, in defiance of such a popular protest as was never before made in Ohio. Mr. Herrick was not wanted as a candidate for a second term, by even a small fraction of the Republicans of Ohio. Six months ago the Republican press of Ohio (such part of it as is free to express its opinion) was almost unanimous in its censure of Mr. Herrick, and demanded his retirement. Excepting a small ring of politicians, the Republican masses called for some other candidate. Mr. Herrick insisted on his own renomination. Politicians with whom he had joined hands in times past found it necessary to support him or disrupt that beautiful "organization." There was then a rush to the throne of Boss Cox. For several days the beery political demigod hesitated. U. S. Senators, U. S. Congressmen, State officers and Republican "leaders," waited breathless for one deciding word from the saloon boss of Cincinnati. He said "Herrick." The "organization" machine then began grinding "Herrick," and he was nominated in a convention in which the chosen delegates of 500,000 Republicans of Ohio had as little to say about the ticket or the platform as would a huddle of homeless dogs on Medina's public park. It was a dummy convention, forestalled and muzzled. From the moment the saloon boss of Cincinnati spoke, the wishes of 500,000 Republicans of Ohio were over-ridden and disregarded. It was as pitiable a spectacle as a great party of a great State ever presented, or, rather, as pitiable a spectacle as one boss and a few politicians who wished his support have ever made of the great party which they assume to own.

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* Friend Acklin, of St. Paul, Minn., sends us some newspaper clippings that tell of a wonderful revival now going on in that city and its neighbor, Minneapolis. Some 25,000 are in attendance, and thousands are converted. Even where the largest halls and auditoriums are chosen, there was only standing room for many of the people. At a recent conference of our churches a speaker, in alluding to the recent frauds that are being exposed and brought to light, said these emphasized the crying need of *real* Christianity more than any thing else that had ever happened since the world began.

Every thinking Republican in Ohio knows this to be true. Every thinking Republican in Ohio knows that our State conventions are coming to be nothing more than ratifications of a "slate" made up by Cox and a few others upon whom he smiles. Hanna is gone, and Cox's path is clear—*unless* the Republican *masses* of Ohio wake to the situation and drive the graft-polluted boss from his place of dictatorship. The time is now. Herrick is hardly more than a shadow in the contest that is on. Behind him stalks the polluted hulk of Cox, swollen by the fruits of graft, dangerous because of conscienceless political shrewdness and organization, that make every day a work day in the field of unclean politics. Unchecked now, the Cincinnati boss will stride on to the political stage of Ohio, complete dictator, to subject it to such disgrace as machine-ridden Pennsylvania has suffered, and to continue in Cincinnati such political corruption as has disgraced Philadelphia in the sight of the whole nation, and made it a political source of contamination of that whole State.

Will the Republicans of Ohio vote to endorse the dictatorship of Cox—for back of Herrick and all around him is Cox? Will they vote to O. K. his dictation to the last Republican State convention and roll up a majority to approve that he name every Republican State ticket, and import into the State capital his rule of bossism and graft?

Or will they serve notice on the Republican "organization" of Ohio that Cox must go to the rear; that a man selected at his dictation over the wishes of a great majority of the Republicans of Ohio will not receive the support of the best element of the Republican party of Ohio? Will they not vote to make it clear to party leaders that the Republicans of Ohio want no more "dumb" conventions? That they want leaders not bosses? that they want fair "organization"? that they want the majority of the 500,000 Republicans of Ohio to rule the party's affairs, and not the word of a junto of machine bosses? that they want a new deal and a square one?

On this issue alone the *Gazette* can not be for Mr. Herrick, and it will not stultify itself by believing one thing and advocating something else.

But there is another issue for which Mr. Herrick is personally responsible. It was his act as governor of Ohio that has aligned him with the saloon and rum element of the whole State.

There is no denying the fact as to where the saloon is in this campaign. His picture has adorned the whisky trade papers of Ohio. His praise is found in their every issue. His supporters are openly saying: "We will get a saloon vote for every temperance and church vote we lose." For the first time in Ohio Republican history the leaders of a Republican campaign are seeking recruits in the saloon, attacking a great temperance organization, and sneering at the expressed sentiments of numberless Christian organizations.

And why? Because (befog the fact, as Mr. Herrick's supporters will) the fact is that Mr. Herrick broke into the Ohio legislature, and, holding his threat of veto over the representatives of the people of Ohio, compelled a modification of a temperance law in favor of the saloon men and brewers of the State. That is the fact. There is no getting away from it. The temperance people of Ohio certainly were not the ones that asked him to do it. They remonstrated from every corner of the State. But the liquor men of the State declared that he had agreed before his election to oppose temperance legislation. And doesn't it look as if he had? His excuse was that it was "unfair" legislation. To whom was it unfair? Was it unfair to the mothers and wives and children who suffer in the cities from the curse and poverty of drink? Was it "unfair" to these helpless ones to have a law passed that would have driven many more saloons from near their wretched homes than can now be voted out?

There is nothing "unfair" in the law that drives the curse and desolation of the saloon away from the vicinity of the homes of the city poor or the city rich. The saloon is an assassin, a butcherer of helpless women and children, a destroyer of men, and deserves *no* quarter. Yet Mr. Herrick is its defender. He guards it from "unfairness"—to the extent of overruling a whole legislature and in the face of the protest of the combined Christian citizenship of Ohio. He has bid for the saloon's support and got it. And why does he or his supporters ask or expect the temperance people of Ohio to join his saloon crowd?

On this issue the temperance people of this State and the lovers of the home can not stand with Mr. Herrick. He made his choice, and here the *Gazette*, with thousands of others, parts from his company. We won't join the saloon in his support, and we will line up with the forces that stand for temperance and the home.

It is said in this campaign that the result in Ohio this year means the support or disapproval of President Roosevelt's administration. This is worse than untrue—it's an insult to the intelligence of every Republican voter. This campaign in Ohio is on Ohio issues, and every intelligent voter knows it. Ohio is overwhelmingly Republican when Roosevelt is the issue, for nearly half the Democrats are with us on that. Think of declaring that this election means the support or condemning of Roosevelt when less than twelve months ago he received 255,000 plurality in the State, and since which time not a voice is raised except in his praise, and the press of both parties unanimously uphold his hands in their splendid work of unpartisan patriotism! Is his great administration hanging in the balance that will turn on the election news telling the result of the efforts of the Cox-Herrick combination to control this State?

The suggestion is insulting to President Roosevelt as well as to the people of Ohio!

If President Roosevelt were a Republican in Ohio to-day he would fight Coxism and Cox to his last breath, and he would be hated and feared by the Cox-Herrick machine just as he was hated and feared by the Boss Platt machine in New York State that tried to shelve him by making him vice-president.

There are other issues on which Myron T. Herrick is gravely arraigned before the voters of Ohio. His weakness as a man, accusations of broken word and pledges, his disregard of the old soldier, the disaster which threatens his party because of his unwisdom, are charges not disproved.

But Coxism, foul and dirty, and the saloon, both of which Mr. Herrick has made (wittingly or unwittingly) his allies in this battle, are repelling thousands of voters from him. We are among them. We can't line up with the other crowd for him. We can't do as the private voter can do, "Keep still and vote as we please," unless we dodge the issue —and we don't wish to dodge this issue. We yield to no man in our loyalty to true Republican principles. During the 13 years that it has been our high privilege to exercise the right of American suffrage we have never scratched a Republican ticket from top to bottom, and have voted nothing else. We heartily support the rest of the Republican ticket in this campaign because we believe it is made up of honest men who will make good public officers.

We do not have any quarrel with Republicans who may *honestly* differ with us in this matter. There are such. We do not expect men who are awaiting public office, or who wish to stand in with the "organization," or who would "vote for the devil" if placed on their party ballot, to approve this article. We have had their opinion very much in advance. We know the plausible talk of the campaigners. We have tried to weigh it all fairly.

But as a Republican seeking what we believe to be best for this State and best for our party, believing that leaders who lead the party wrong should be deposed from command, we can not support for governor a man who has embraced both Coxism and the cause of the saloon, and we will continue to oppose those two things so long as we can raise a voice against them.

Since the above was put in type we have the following from the Hon. A. R. Webber, of Elyria, Ohio, Member of Congress from Gov. Herrick's district. We copy it from the Medina *Gazette* of Oct. 27:

I will not campaign shoulder to shoulder with brewers, distillers, and the Liquor League of Ohio. Since I promised to address you in a meeting I have read the doings of the allied liquor interests of the State, in which their united support is to be given for Governor Herrick and against the temperance forces of Ohio, and especially the Anti-Saloon League.

I have fought the rum power for twenty years, and helped organize the Anti-Saloon League. I believe the Anti-Saloon League has been and will continue to be the greatest organization in America to hurl against the liquor traffic everywhere. To show the liquor interests' opinion of the Anti-Saloon League I quote the following letter that has been sent out by a distilling company:

THE FLEISCHMANN COMPANY
Distillers, Re-distillers, Blenders
WESTERN DIVISION

DISTILLERIES
RIVERSIDE, O.
PEEKSKILL, N. Y.
Branch Distributing Points:
Cincinnati, New York
Baltimore, Pittsburg
Buffalo, San Francisco

CINCINNATI, OHIO.
Sept. 27, 1905.

Dear Sir:—Have you considered the importance of the approaching Gubernatorial election in Ohio and how very seriously the result of this election will affect the liquor interests of this State?

It will vitally affect every business concern and every individual dependent for support, directly or indirectly, upon the liquor interests

A plain business proposition confronts us.

On the one hand is a candidate who was nominated by the "Anti Saloon League."

On the other hand is a candidate whom that organization is fighting with every effective force at its command.

The election of the "Anti Saloon" candidate, John M. Pattison, will mean the entire subservience to each and every restrictive and prohibitive policy for which the "Anti Saloon" League openly and avowedly stands; it will mean the complete domination of the Legislature and a death blow to the liquor business and its allied interests in the State of Ohio.

Hence, it behooves the distiller, the wholesaler, and the retailer to at once arise to the needs of the situation by instituting a personal and vigorous campaign for the protection of their business.

Every man interested, directly or indirectly, in their business welfare should be talked with personally or written to, urging him to vote for Myron T. Herrick and against the "Anti Saloon" candidate, John M. Pattison.

Your malster, cooper, bar fixture manufacturer, dealers in supplies of all sorts, grocer, butcher, friends—all of these should be made to understand the serious importance to your interests which is involved in this election; urge each and every one of them not only to vote for Herrick, but to join you in urging others to do likewise.

We trust that you will see the importance of working hard and incessantly from now on until the close of the polls on election day.

You must use every influence at your command to assure the salvation of your business interests.

Yours very truly,
THE FLEISCHMANN COMPANY.

The men who have had the most to do in building up this now national organization are Russell, Baker, Wheeler, Dinwiddie, and Jackson. Nearly every State in the Union has been organized by the League. The League has national headquarters in Washington, looked after by Dinwiddie, through whose leadership Congress refused to admit the Indian Territory and Oklahoma unless they would agree that no traffic in intoxicating liquor as a beverage should ever be granted in the new States.

Tens of thousands of people in Ohio have contributed and will continue to contribute tens of thousands of dollars toward the work of the Anti-Saloon League. Back of it are all the churches, Sunday-schools, Epworth Leagues, Christian Endeavor, Y. M. C. A.'s, and all temperance organizations. It was organized to fight the liquor traffic, not candidates—unless they get in the way of its progress. It stands for the good of every child in Ohio; for every home; for every man who has fallen out by the way. It has made the name of Boss Cox a hissing and a by-word everywhere except with the allied liquor interests. It will never die till the work for which it was organized has been accomplished.

I am exceedingly sorry that the Governor is having a quarrel with it or any of its leaders. This is unfortunate, for I have known the Governor many years, and believe him to be a clean man of kind impulses.

I wish the Governor would go to quarreling with the Liquor League of Ohio and Boss Cox. His failure so to do has disappointed his thousands of Republican friends.

Come out, Governor, and repudiate the whole combination, and tens of thousands of Republicans now declaring against you will turn with zeal in your interest. You owe this to those of us who know you well.

It is not the Brannock law the people so much care about at this time, but it is to know that you are not allied with the element that destroys, and the boss whose cunning has made the good citizens of Cincinnati ashamed of their fair city; and the only way to convince the people, under the circumstances, is to cry out against them publicly and to spare not.

As a member of Congress, if I live to reach Washington in December I shall introduce a bill to abolish the liquor business forever from the District of Columbia; and in support of this I expect the support of the Anti-Saloon League, and all people in America who believe that the open saloon is the enemy of mankind.

Elyria, O., Oct. 26. A. R. WEBBER.

HEALTH NOTES
BY
A. I. ROOT

DR. SALISBURY; GIVING CHILDREN MEDICINE, ETC.

On page 1009, Oct. 1, Ernest tells how he was cured of deafness, etc. I wish to add something to it. Mrs. Root and I took our twelve-year-old boy to Cleveland for the purpose of consulting some eye and ear doctor; but as Dr. S. had been treating me I went first to him, thinking he might be able to refer us to some safe specialist. After what Ernest has told you, the doctor said something like this:

"The trouble with the boy's hearing is because he is not in good general health for a growing boy."

He took hold of the boy's slender arm, then grabbed him by the calf of the leg, remarking, "See here! this boy wants to be kept outdoors more, and given some active exercise. Get him a hatchet, a sled, and a wheelbarrow. Give him some rubber boots and suitable clothing so he can be out in all kinds of weather. Perhaps he'd better drop school for a year. He will more than catch up when we get some good muscle on him. When the calves of his legs fill out with good strong firm muscles his hearing will be all right. His outdoor work will give him an appetite for the lean meat, and have him eat as much of it as you can."

I asked if he would need physic, as I did, to prevent constipation.

"No, I think not. I don't like to give medicine of any kind to children, and it is seldom necessary. Nature will take care of them if their food and habits are right. We advise some medicine for grown-up people when they have for some years gone wrong and they can stand it better; but it is a bad plan for anybody."

I think Ernest was kept out of school one winter. His wheelbarrow was soon known all over town; for with his waterproof suit it was out in all kinds of weather—either that or the sled. His appetite increased, as a matter of course, and his muscles developed, and finally his hearing was all right. God intended children to be out of doors every day in the year. And the parent who, with mistaken kindness, "coops them up," must pay the penalty in some way or other.

While paying tribute to Dr. Salisbury I wish to mention another reform he started.

BREAD WELL BAKED AND FOOD WELL COOKED.

When the doctor allowed me a little bread after I had been some time on clear-meat diet, it was only the German zwieback (or "twice-baked") bread; and later, when I began to eat common bread, he said I should be careful to have it well baked. Soft doughy bread masses on the stomach, and the gastric juice can not get all through it. As a consequence, digestion is delayed, and the old fermentation gets started. Mrs. Root and I are constantly annoyed in traveling because we can not find bread baked enough to be wholesome. When we go to the bakers they tell us their average customers will not buy it if it is baked hard. Why do invalids and others whose digestion is bad always have "toast"? Why, it's just because all the world admits that well-baked or twice-baked bread is more digestible. Dr. S. always told his patients to have all grains thoroughly cooked. Indian meal is a very wholesome food if cooked slowly *several hours*, and the same with oatmeal and lots of other things. *Poor* cooking and *insufficient* cooking has much to do with getting along without medicines and doctors.*

SUN BATHS.

After writing up "A. I. Root's Bathroom" in last issue I came across the following in *Good Health* for October.†

SUN BATHING FOR LONGEVITY.

Mr. Andrew Joseph Thompson, of Santa Rosa, Cal., who has reached the unusual age of 113 years, recently made a trip to Minnesota to attend the marriage of his great-granddaughter. Mr. Thompson is active and bright-eyed. He says that he hopes to complete another century of life. He gives the following as the reasons that have enabled him to reach this great age in comfort:

"In the first place I refuse to be worried about anything. Since I ceased actual business, about sixty years ago, I have never let a day pass, when the sun shone, without baring my body to its rays for one or two hours. On my place in California I have an enclosed space where I go as naked as God made me. There is a little lake, and some woodland, and a rose-garden; and during the time of my sun bath I ramble about through the paths. The sun sinks into my old bones, and gives them new life. My skin is as brown as an Indian's all over. It has been that way ever since I began the practice of sun bathing. For cold weather I have a glass house at the top of my residence, comfortably fixed up, and there I take my bath through the windows when compelled to do so."

One might almost think I got some of my ideas from the above. Now, can we not have some *more* "gardens" for sun bathing? Why, bless your hearts, friends, it was in *just such* a garden that God placed Adam and Eve before the Fall, and *they two* had "sun baths" every day and all the time. Was it E. P. Roe who gave us the book "Getting Back to Eden"? Well, now, don't you believe it will be a grand thing for a great lot of us to "get back to Eden"? and may be some of us older ones had better get into a "hustle" about it ere it is too late.

Convention Notices.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention at the Revere House, corner of Clark and Michigan Sts., Chicago, during the fat-stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are Dec. 5, 6, and 7. Rates at the hotel are 75 cts. for a room alone, or 50 cts. each where two occupy the same room. Meals are extra, or they may be secured at nearby restaurants. The program is as follows:

FIRST DAY.

Evening session, 7:30.—"Wax-rendering Methods and Their Faults," O. L. Hershiser, Buffalo, N. Y.; "Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-keeper?" by Hildreth & Segelken, New York.

SECOND DAY.

Morning session, 9:30.—"How many Bees shall a Man Keep?" by E. D. Townsend, Remus, Mich.; "Short Cuts in Bee-keeping," by M. A. Gill, Longmont, Colo.; "Producing Comb Honey and Extracted Honey on the same Colony," by Jas. A. Green, Grand Junction, Colo.; question-box.

Afternoon session, 2:00.—"The Control of Increase," by L. Stachelhausen, Converse, Texas; "Migratory Bee-keeping," by R.F. Holtermann, Brantford, Can.; question-box.

Evening session, 7:30.—"Contagious Diseases among Bees, and how to Distinguish Them," by Dr. Wm. R. Howard, Ft. Worth, Texas; "Experimental Apiculture," by Dr. E. F. Phillips, Washington, D. C.

THIRD DAY.

Morning session, 9:30.—"The Honey-producers' League—Can it Help Bee-keepers?" by R. L. Taylor, Lapeer, Mich.; "The Business End of Bee-keeping," by N. E. France, Platteville, Wis.; "Successful Experience in the Making of Honey Vinegar," by H. M. Arnd, Chicago, Ill.; question-box.

Afternoon session, 2:00.—"In what Way can Bee-keepers Secure Their Supplies at Lower Prices?" by W. H. Putnam, River Falls, Wis.; "How the Producer and Dealer may Advance their Mutual Interests," by Fred W. Muth, Cincinnati, Ohio; question-box.

Evening session, 7:30.—"What have We to Hope for from the Non-swarming Hive?" by L. A. Aspinwall, Jackson, Mich.; "Poultry-keeping for the Bee-keeper," by E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Sec.

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* Let us not forget how much the *Good Health* people of Battle Creek, Mich., have done in furnishing the world with wholesome foods *well cooked*. And, by the way, Mrs. Root and I, after testing a great number of coffee substitutes (including the "Postum"), have settled down on the "carmel cereal," made by the Battle Creek people, as *first* and *best*.

† Perhaps I might add that, with the arrangement described in the last issue, I took several very nice sun baths and water baths out in the open air during the last week in September; and during the whole of that month I enjoyed better health and more exuberant spirits than I ever did at any other time of my life, not even excepting my boyhood.

Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—To exchange modern firearms for incubators and a Barnes cross-cut saw.
W. S. AMMON, 216-218 Court St., Reading, Pa.

WANTED.—To buy colonies of bees. State price and condition.
F. H. FARMER,
182 Friend St., Boston, Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N Y.

WANTED.—Refuse wax in exchange for cash, or stock in standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—At once, 30 Danzenbaker brood-frames filled with sealed honey; free from disease. State price. JAMES SOWARDS, Pikeville, Ky.

WANTED.—To exchange an Odell-Young typewriter, double-case machine, full nickel-plate, for Root-German, or Ferris wax-extractor, or anything useful to a bee-keeper.
FRANK LACEY, 81 North St., Danbury, Conn.

WANTED.—A few copies of GLEANINGS for Dec. 15, 1885. Parties sending good clean copies of this issue may have their subscription advanced two months, or we will send ten cents in stamps. Not more than 25 copies can be used.
THE A. I. ROOT CO., Medina, O.

Help Wanted.

WANTED.—Half a dozen bee-men for Cuba; men of ability and practice, men that *know* the honey business from A to Z. No others need apply.
W. W. SOMERFORD, Caimito, Cuba.

Situations Wanted.

WANTED.—Position. Any one desiring to employ a practical bee-keeper, address undersigned, who has been instructor in bee culture for two years under the Swedish Agricultural Society. For further particulars address C. J. ARISO, Canton, So. Dakota.

WANTED.—Situation with some bee-keeper who makes his own hives No bad habits. I have a set of tools. ROBT. MCQUIN, Norway, Iowa.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

FOR SALE.—Fifty colonies of bees for $75.00. Address
F. B. BLACK, Pleasant Mound, Bond Co., Ills.

FOR SALE.—Full colonies of leather-colored Italian bees at $4.00 per colony.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Several hundred acres of magnificent land at $5.00 and $10.00 an acre, in one of the finest wood and grass districts of Cuba.
R. M. MCMURDO, Cauto, Cuba.

FOR SALE.—White Wyandotte cockerels and pullets, selected stock, farm raised, at $1.00 each..
JOHN BUFINK, Rome City, Ind.

FOR SALE.—Bees in Root's eight-frame hives with one super complete; hives well painted; bees in good condition; 44 stands for $5 00 a stand.
CLIFFORD EWERS, Carlsbad, New Mexico.

FOR SALE.—White Leghorn and White Rock cockerels; choice birds at $1.00 each.
HAL OPPERMAN, R. F. D. 7, Pontiac. Ill.

FOR SALE.—A large watch dog and man-trailer; bred from full-blooded mastiff and bloodhound sire; two years old. C. MCQUEEN, Baltic, Ohio

FOR SALE.—Cheap, 32 colonies of Italian bees in eight and ten frame two and three story hives. Reason for selling, have no time to take proper care of them.
N. O. PENNY, Vero, Indian River, Florida.

FOR SALE.—My entire apiary of 100 colonies. I have kept bees 68 years, and the infirmities of old age compel me to quit the business.
D. L. BULER, Wauseon, Ohio.

FOR SALE.—Fourteen colonies of Italian bees in Langstroth and Simplicity hives.
JOHN HERBERT, Hampshire, Ill.

FOR SALE.—My apiaries of 300 colonies near Macon, Ga., the third healthiest city in the U. S., a ready market for output at a fancy price. Prefer selling a half-interest to a good practical bee-man to take charge. If you mean business, address for particulars
JUDSON HEARD, Atlanta, Ga.

FOR SALE.—We offer, for the first time, queens which produce beautiful bees. You never will be sorry if you try one of our beauties. Untested, 75c; tested, $1.00. Choice strain of leather-colored queens at same price.
F. H. FARMER, 182 Friend St., Boston, Mass.

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without artificial heat, egg-foods, stimulants—an easy, inexpensive positive way. Our FREE booklet tells how to prevent fowls suffering from roup, colds, cholera, loose bowels, etc., and how to get eggs in coldest weather. Send a postal to-day to
CHARLES SCHILD CO., 1 Frankfort St., Cleveland, O.

THIS PRIDE KING HEATING STOVE $3.90

FREIGHT PAID

This is positively the lowest price ever made for a genuine Oak Heater, fully guaranteed or money back. PRIDE KING has a draw center grate, corrugated cast iron fire pot, sheet steel body, heavy cast base and heavy cast front with large front door hung on double hinges, heavy cast swing top, heavy cast ring at joining of body and fire pot, large cast ash pit door, two screw draft regulators, and is the only stove of its kind supplied with an ash pan. The $3.90 price is for stove with wood grate; coal grate 10 cents additional, making a powerful heater that will burn wood, hard or soft coal. A beautiful stove, full nickel trimmed, as shown in cut. Write for it today—it's the best stove bargain of the season.

Ask us how you can save $150 to $250 a year on your household supplies. Others are doing it, why not you? The plan is simple—you get 10 per cent discount on everything you buy. Write today for information.

Our 1,000-page FREE merchandise catalog has hundreds of stove snaps you can't find anywhere else. Write for it NOW; it will save you money every day.

Co-Operative Society of the National Supply Co., Lansing, Mich., Chicago

A Telephone for the Country Home

The telephone in the country home is not a luxury—it's a money-saving investment that brings returns every day. Keeps the farmer's family in close relation with the neighbors, saves many a trip to town, and helps to make the young folks satisfied with the farm by giving them advantages like their city cousins.

Stromberg-Carlson Telephones

Are the right telephones for country homes. They work right, *stay right*, and the price is right. Our new book 36-E, "How the Telephone Helps the Farmer," illustrates and describes how our telephones are made—explains why they are the best to buy. Farmers are building lines all over the land. *Why not you?* The book shows how cheaply it can be done. If you are interested we will send you a book telling "How to Build a Rural Telephone Line," and how to maintain it after it is built. Both books are *free.* Write nearest office for them *today.* Address

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Forty Acres Hardy Roses, NONE BETTER GROWN. 44 Greenhouses of Palms Ferns, Ficus, Roses, Etc., Etc. 52 years. 1200 acres. Correspondence solicited. Valuable Catalogue FREE. **THE STORRS & HARRISON CO.,** Box 36, Painesville, O.

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Ask for details of how we can save you $150 to $200 a year on your purchases—we have a plan it will pay you to know all about.

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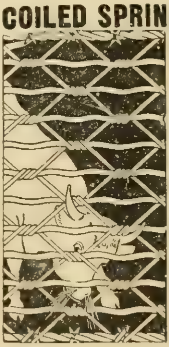

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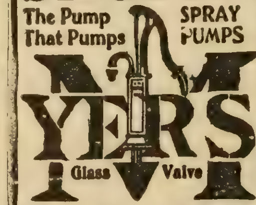

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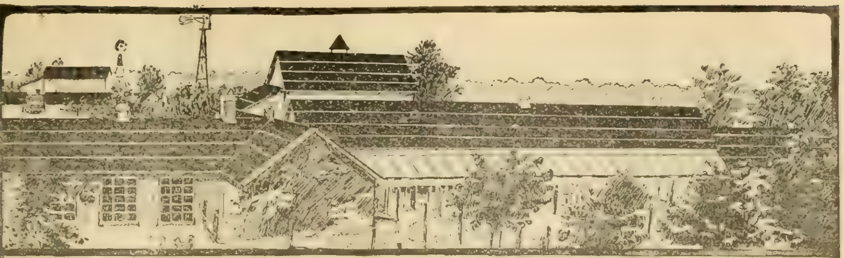

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The Monmouth Poultry Farm, Freneau, N. J., one of the largest in the country, sends a photograph (see above) showing their Paroid roofs. They like it and so do thousands of poultrymen, the large ones and the small ones, because they found that for roofing and siding, nothing in the world equals

PAROID ROOFING.

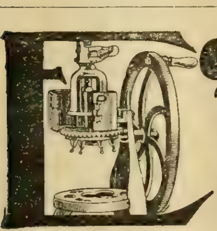
Economical, durable, extra strong, light slate color—contains no tar—does not run nor crack—does not taint rain water. Any one can lay it. Keeps buildings of all kinds warm and dry; spark, water, heat, cold, acid and gas proof, in short it's just the roof you're looking for. Now, don't be put off with a poor imitation, but

Send for Free Samples and name of nearest dealer. Investigate its merits for yourself. For a 2 cent stamp we'll send new book of complete plans for poultry and farm buildings.

F. W. BIRD & SON, Makers.

Originators of the free Roofing Kit—fixtures for applying in every roll.

EastWalpole, Mass., *Established 1817.* **Chicago, Illinois.**



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Makes bone cutting simple, easy and rapid. No money in advance. Cuts all bone and adhering gristle. Wastes nothing. Cat'lg free.

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OPEN HOPPER.
Humphrey Green Bone and Vegetable Cutter
will double your egg yield and cut your feed bill in half. Guaranteed to cut easier and faster than any other. Trial offer and catalogue free.
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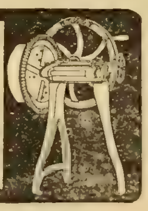
THE CROWN Bone Cutter for cutting *green bones.* For the poultryman. Best in the world. *Lowest in price.* Send for circular and testimonials. **Wilson Bros., EASTON, PA.**



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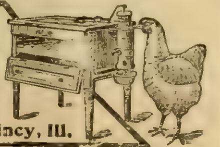

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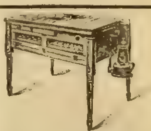
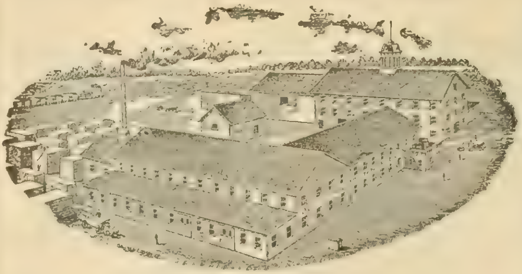
Perfect in construction and action. Hatches every fertile egg. Write for catalog to-day.
GEO. H. STAHL, Quincy, Ill.



Get An Incubator
made by "the man who knows"—founded on 20 years experience. You can make money with Miller's
IDEAL INCUBATORS
and Brooders; absolutely automatic and self-regulating. **Positively Lowest Prices.** Handsome 128 page Poultry Book free.
J. W. MILLER CO., Box 48, Freeport, Illinois.



Kretchmer Manufacturing Company
Council Bluffs, Iowa

BEE-SUPPLIES!

We carry a large stock and the greatest variety of every thing needed in the apiary, assuring BEST GOODS AT LOWEST PRICES and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for catalog.* :: :: ::

DISCOUNTS for EARLY ORDERS

DEALERS IN OUR GOODS

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa,
I. H Myers, Lamar, Colorado
Southwestern Bee Co., San Antonio, Tex.

DITTMER'S FOUNDATION IS THE BEST!

Now is the time to prepare for next season **If you want to save money** on Foundation, working Wax for cash, and on a full line of Supplies. Write for prices, discounts, and samples of our Superior Foundation.

E. Grainger & Co., Toronto, Ontario, - - Agents for Canada.
The Bee & Honey Co., Beeville, Texas, - - Agents for Texas.

GUS DITTMER, -- AUGUSTA, WIS.

WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

BEST GOODS IN THE WORLD

Best bee-hives, sections, comb foundation, and every thing the bee-keeper needs. Now is the time to buy for next year's use Lewis' goods at factory prices. Catalog free. ::: ::: ::: ::: :::

CASH ORDERS AT CATALOG PRICES!
on such goods as mentioned in special list. Before November, 9 per cent; before December, 8 per cent; before January, 7 per cent; before February, 6 per cent; before March, 5 per cent; before April, 3 per cent. Ask for special list, free. ::: ::: ::: :::

PACKAGES FOR MARKETING HONEY!
such as shipping-cases with glass front, tin cans, buckets, glass jars with patent spring sealers and glass stoppers, regular glass fruit-jars, etc. Sample mailing-blocks for mailing samples of extracted honey. Special prices on glass honey-jars and tin buckets. ::: :::

NEW CROP OF EXTRACTED HONEY!
If you can't supply the demand in your locality, write to us at once and tell us how much you can use, and get our price by return mail. We have an abundance of the finest honey in the world; 10 cts. for sample by mail and the 10 cts. returned with your first order. :::

PAINTS FOR HOUSES, BARNS, ROOFS!
We quote low prices on all grades of paints, and especially on paint absolutely pure. Let us quote on paint for your house. ::: ::: ::: :::

Best of service given all orders. Low freight rates. Write us to-day and tell what you want.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

BINGHAM
Original
Direct Draft
CLEAN
Bee Smokers

4 Largest Sizes Soot Burning

Pat'd 1878, '82, '92 & 1903

Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

T. F. BINGHAM, FARWELL, MICH.

BINGHAM was the FIRST

to invent and make a bee-smoker that would burn sound wood, and go all the time without puffing. It has been the *World's Standard* for 26 years. Bingham invented all the patented improvements in bee-smokers, and uncapping-knife for his own use in his own apiary.

Oxford, O., Sept. 30, 1878.
Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

ONLY BINGHAM SMOKERS
Have These Latest Improvements.

WHEN ATTENDING THE
NATIONAL BEE-KEEPERS' CONVENTION
AT CHICAGO, DEC. 6, 7, 8
COME AND INSPECT
LEWIS' BEEWARE
AND MAKE YOUR HEADQURTERS AT
York Honey and Bee Supply Co.,
(Not Incorporated)
141-143 Ontario St.,
Chicago, - Illinois,
Long Distance Phone, North 1559

H. M. Arnd, Mgr.

Catalog and prices on honey on application. If you want good goods at factory prices and prompt shipment, send your orders, or call on us.

BEESWAX WANTED

26c cash, or 28c when taking bee-supplies in exchange, delivered here.

8 per cent DISCOUNT
IN OCTOBER

I. J. STRINGHAM,
NEW YORK

Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

12-ounce round jars, NICKEL CAPS, $3.75 per gross.
No. 25 jar, nickel or porcelain cap, $4.50 per gross.
1-pound square jars, with corks, $5.00 per gross.
Catalog free.

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

FOR SALE
HONEY-JARS

No. 25 honey-jar, porcelain cover, metal screw-cap, absolutely tight, holding one pound of honey net, in shipping-cases, one gross each.

1-gross lots	$4.50	per gross
5 " "	4.00	"

Also in Strong
Re-shipping Cases

of two dozen each, heavy corrugated partitions, sides, top, and bottom, a perfect protection. . .

1-case lots	$1.00	per case
5 "	.95	"
10 "	.90	"

Eight-ounce Tumblers

Tin caps, three dozen in re-shipping case

5-case lots	$ .85	per case
10 "	.80	"
20 "	.75	"

HILDRETH & SEGELKEN
82-84 Murray St., New York

BEE-KEEPERS' SUPPLIES

QUEENS AND BEES

We allow early-order discounts.

64-page catalog free.

J. M. JENKINS, WETUMPKA, ALA.

"ESTABLISHED NEARLY TWENTY-FIVE YEARS"

LOWEST PRICES

BIG DISCOUNT - EARLY ORDERS

On cash orders before November 1....9 per cent
" " December 1....8 per cent
" " January 1......7 per cent
" " February 1 ...6 per cent
" " March 1 ....4 per cent
" " April 1 ....2 per cent

BEE-SUPPLIES

OF ALL KINDS

We have published *The American Bee-keeper* for 15 years (monthly, 50c a year); the largest and best illustrated magazine of its kind for the price published; edited by two of the most experienced bee-keepers in America. Sample copy free. Our large illustrated price list of supplies free on application. Address ::: ::: ::: :::

The W. T. Falconer Mfg. Co.
Jamestown, New York

PAGE & LYON
NEW LONDON, WISCONSIN

Manufacturers of and Dealers in

BEE-KEEPERS' SUPPLIES

Eight per cent Discount during November on all Orders Accompanied by Cash

Send for Our FREE
New Illustrated Catalog and Price List

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

November 1......	9 per cent	February 1.......	6 per cent
December 1......	8 per cent	March 1	4 per cent
January 1........	7 per cent	April 1	2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

Special Notices By Our Business Manager

If you have any thing to sell, to exchange, want a situation, or help, use our classified columns for Dec. 15. For that issue only we will make a special rate of 10c per line to any subscriber who has not tried these columns during the present year. We can assure you of good results.

In our Oct. 15th issue we announced a special issue for Dec. 15 (Christmas Number). The cut below shows the design, but the real beauty can not be shown in a small cut in one color. No finer printing has ever been put out anywhere, we believe, than this cover, which is printed in the natural colors of the red clover. Our subscribers can make a fine Christmas present to their amateur bee-keeping friends by ordering a year's subscription for them, beginning with Dec. 15th issue. As a matter of fact, we can not begin a subscription with the middle of the month, so any presentation orders for 1906 will include the Dec. 15th issue without charge. Subscriptions are already pouring in faster than we have ever known before.

CHRISTMAS 1905
GLEANINGS
IN BEE
CULTURE
THE A. I. ROOT CO.
MEDINA, OHIO, U.S.A.

BUSINESS OUTLOOK.

There is considerable activity in supplies for this season of the year. An increasing number are taking advantage of the early-order discounts. We notice, too, that customers who get started in this habit generally keep it up. The larger proportion of orders are from those who have ordered early in former years. They have learned that it is not only profitable from the investment standpoint, but that it is a decided advantage to have the goods on hand to prepare during the leisure time of winter for the following season.

Last season closing early left many of our dealers with a liberal stock on hand, yet we are receiving encouraging orders from many of these, and the promise of more in the near future. We have shipped half a million sections with other goods to Scotland, and have another order from the same country for another half-million, together with frames and hive lumber. All of the sections which we send to Great Britain are split top for fastening foundation—a feature never introduced in this country. Sections can not be folded and receive foundation starters by this method nearly as rapidly as by our American methods. It is convenient sometimes when only a few sections are used, and you are not provided with the machine for folding and fastening starters.

AWARDS IN PHOTOGRAPHIC CONTESTS.

The following awards have been made in the contest announced some months ago for best foreign photos of bee-keeping subjects:

First Prize.—Father Adrien Cavaille, director of the apiary of Abbaye de la Grande Trappe, Soligny, France.

Second Prize.—"Societe des Apiculteurs," Algeria.

Third Prize.—P. Chiris, Marseilles, France.

SECOND AMERICAN COMPETITION.

Class A—Apiaries.—First Prize, E. H. Hanselman, Augusta, Wis.; second prize, W. Z. Hutchinson, Flint, Mich.; third prize, M. E. Tribble, Marshall, Mo.

Class B—Comb Honey—First prize, decision pending; second prize, decision pending; third prize, G. B. Woodberry, Glendale, Calif.

Class C—Swarms, etc.—First prize, A. L. Errett, Madison, Pa.; second prize, Arnt Arneson, Cameron, Wis.; third prize, F. P. Briggs, Ayer, Mass.

The winners in the foreign contest as well as a large number of others forwarded their photographs through Monsieur Emile Bondonneau, 142 Faubourg St. Denis, Paris, to whom we acknowledge our indebtedness for his kind assistance in securing for this contest a large number of fine photos.

In Class A, American, we have some exceptionally fine views. Wisconsin leads again with first-prize apiary. In Class C, views of swarms, etc., Mr. A. L. Errett, who secured a first prize in our former contest (see page 657, June 15 GLEANINGS) secures first prize again with a delightful subject. Mr. Arneson and F. P. Briggs follow closely behind with equally interesting photographs.

The publication of these photographs in fine half-tone engravings will begin in our December 15th issue, and be continued regularly for several months.

We shall announce another contest, both domestic and foreign, in our December 15th issue. As the entries are not large in number, and as there are no conditions attached, we urge every bee-keeper to be constantly on the lookout for suitable photographs, as the competition is not heavy and prizes are large.

Special Notices by A. I. Root.

BASSWOOD-TREES FOR FALL PLANTING.

I am sorry to tell our friends that we are already sold out of the trees one foot and under; but we have a pretty good stock from one to five feet at 10 cts. each; 75 cts for 10; $5.00 per 100. We can ship them at any time now before the ground freezes up, which will not, in our locality, be before about the first of December.

THE CHRYSANTHEMUM.

And now we have a whole book just about chrysanthemums and nothing else, just out, published by the O. Judd Co. It has 160 pages, and is well illustrated. There is a chapter on hardy chrysanthemums that can be grown outdoors. Price 50 cents.

We have also another new book entitled "Soil Physics and Laboratory Guide," by Prof. Stevenson, of the Iowa State College. The above is a text book, I should say, specially for students in our experiment stations. It is pretty severely scientific. It has 80 pages, and is well illustrated. Price 50 cents. Either of the above books will be sent postpaid from this office at the above price.

The Open-hopper Bone-cutter.

The staple article of feed for laying hens is green bone. Of other foods there is great variety in use. Some feed the products of the farm in their unprepared state only. Some rely largely on specially prepared or patent poultry foods. But everybody wants to use green bone It is beyond question that bone contains in right proportion more of the egg-making materials than any other single substance that can be fed. And in the winter time, and always when hens are confined, these materials must be supplied or it will quickly tell in the egg yield.

This puts to a most excellent use the bones which, on the farm and in local markets, would otherwise be thrown to the dogs and afterward gathered and burned. It has also been the means of perfecting in recent years several makes of bone-cutters, one of the best of which is the open-hopper cutter manufactured by Humphrey, at Joliet, Ill. It is used either as a bone or vegetable cutter. Some of its good points are: There are no partitions in it. It has no springs, split nuts, nor other complicated parts. There is nothing about it that can break or get out of order. It differs from most bone-cutters in that it is exceedingly easy running. Most bone-cutters are hard-turning, as many users will testify. The Humphrey Open Hopper has the reputation of being the easiest running cutter made. For this reason it is not necessary to cut or break the bones into small pieces with an ax, as is the case with some bone-cutters. One hand is sufficient to operate it. The feed may be regulated to cut as fast or as slow as desired. The bone-cutter is one of two machines which Humphrey manufactures for poultry-raisers' use. The other is his rapid clover-cutter, which is hardly less popular. Both are sold on a very liberal free-trial offer to those who are not acquainted with the merits of the Humphrey machines. The Humphrey catalog, which contains much information for poultrymen, will come free and promptly if you write him at the address given in his advertisement in this paper.

Convention Notice.

On account of the National Bee-keepers' Convention at Chicago on dates conflicting with ours, the Executive Committee has decided to postpone the usua annual meeting of the Minnesota Bee-keepers' Association till further notice. MRS. W. S. WINGATE, Sec.

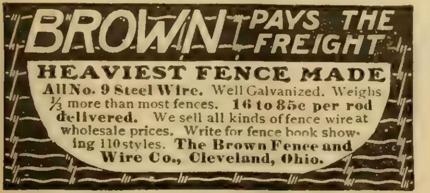
The 15th annual meeting of the Illinois State Bee-Keepers' Association will be held in Springfield, on November 21 and 22, 1905, at the G A R. Hall in the courthouse. The railroads will give a rate (open) of one fare and a third for the round trip, on account of the I. O. O. F. meeting the same week. Let all bee-keepers come and bring their wives, and help us to get out the best report we have ever had published. Our State has been so helpful to bee-keepers as to aid them in publishing their report and suppressing foul brood, so let us show our appreciation of the same by aiding in he wise use of the funds appropriated.

JAS. A. STONE, Sec.

SHIPPING-CASES---Plenty for All

Made of Michigan white pine; 24-lb., $13.00; 12 lb., $8.00; 20-lb. Danz., $11.00 per 100; less than 100 lots, ½c more each; 3-in. glass 1c each more; No. 1 sections, $4.00; No. 2, $3.50 per 1000. All kinds of supplies kept in stock. Send for list.

W. D. SOPER, Rural Route 3, JACKSON, MICH.


BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs ⅓ more than most fences. **16 to 85c per rod delivered.** We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. **The Brown Fence and Wire Co., Cleveland, Ohio.**

FOUR per cent

WHEREVER YOU LIVE

BANKING BY MAIL

is within your reach. Only a stamp separates you from this bank. We pay four per cent interest on savings accounts, compounded twice a year. Write for particulars. . . .

The SAVINGS DEPOSIT BANK COMPANY
Medina, Ohio

ASSETS OVER HALF MILLION DOLLARS

A. T. SPITZER, Pres.
A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier

AIKIN HONEY-BAGS.

1-LB. SIZE, 3½x5½.

100	$ .65	1000	$5.50
500	3.00	5000 @	5.25

2-LB. SIZE, 5x7½.		5-LB. SIZE, 7x10.	
100	$ .80	100	$ 1.20
500	3 75	500	5.50
1000	7 00	1000	10.50
5000 @	6.60	5000 @	10.00

3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8 75	1000	13.50
5000 @	8.25	5000 @	13 00

We will print in name and address of producer or dealer, in different quantities, at the following schedule of prices for any size:

Lots of 100	30 cts.
Lots of 250	50 cts.
Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 250 of each, would be $2 00; with ten different names, $3 00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10 000 or over.

The A. I. Root Co. • Medina, Ohio.

Chas. Israel & Brothers

486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc.

Consignments Solicited. Established 1875.

Prices of Queens	1	6	12
Untested	$ 75	$4 25	$ 8 00
Select Untested	1 00	5 00	9 00
Tested	1 00	6 00	11 50
Select Tested	1 50	8 50	16 00

Breeders, $3 to $7, according to points scored.

Long Tongue, Red Clover Strain of Italian Bees

THE BEST

ALL 'ROUND BEES

ON EARTH.

THE VICTOR-KNOLLE APIARY CO., HONDO, TEX.

MOORE'S - STRAIN - OF - ITALIANS

ill the Supers and are not Inclined to Swarm

Stewart Smillie, Bluevale, Ont., Can., says:

"They fill the supers and are not so much inclined to swarm as others. I have been buying queens for fifteen years, and your stock was the only one that was any good to gather honey."

Untested queens, $ .75 each; six, $4.00; dozen, $7.50
Select untested, $1.00 each; six, $5.00; dozen, $9.00

Safe arrival and satisfaction guaranteed. Do not delay. The season is fast coming to your order here as quick as possible. :: :: :: ::

J. P. MOORE, MORGAN, PENDLETON CO., KY.

HONEY QUEENS

Another car of bees offered for next season. Plenty of fine queens on hand at all times. Laws' Italian and Holy Land queens—the best bees on earth for business. Single queen, $1.00; six for $5.00. I can mail queens any month in the year. Eight-frame hive complete in the flat, 60c; 1½-story, 80c; full-depth supers, 26c; Hoffman frames, $15.00 per 1000. Hives made this winter only; but few orders will be accepted after March 1st.

W. H. LAWS, - - Beeville, Texas.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1 25—after June 15th, $1 00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

LOTS OF GOOD QUEENS

Untested, $1.00 each; six for $5.00, or $9 00 per dozen. Tested, $1.50 each; select, $2.50. Bees for sale in car lots for spring delivery. Correspondence solicited. Agents for Dittmer's foundation for this State. Get prices.

THE BEE AND HONEY COMPANY,
WILL ATCHLEY, MGR. **BEEVILLE, BEE CO., TEX.**

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

ROOFING-PAPER, two-ply, 75 cents per 100 square feet. G. ROUTZAHN, Biglerville, Penn.

CARTONS

Folding style for 4¼ sections, 1½, 1⅜, 1⅝, 1¾ inch wide, so long as they last, at $4.00 per 1000. . . Three-inch glass for shipping-cases at $10 00 to $15.00 per 1000 sheets. No more queens for this season, but instead we can sell you comb and extracted honey.

QUIRIN = THE = QUEEN = BREEDER
BELLEVUE, OHIO.

UNITED OPINION
IN THE INLAND WE TRUST
A $1.00 JOURNAL FOR 50¢

FREE!

LEARN more about the great poultry industry. They make money while you sleep, and will ive on what you hrow away. Our paper tells how to nake money on poultry, eggs, and incubators. Ask for sample copy now—it is free.

Inland Poultry Journal,
40 Cord B'ld'g,
Indianapolis, Ind.

"The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer
W. M. BARNUM, EDITOR
Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

Our Syracuse, N. Y., Branch

is prepared to ship promptly all
Bee-keepers' Supplies, giving
the same discount as Medina.

The A. I. Root Co., Syracuse, N. Y.

F. A. Salisbury, Manager.

WHO?
WHAT?
WHEN?
WHY?
WHERE?

And Root's Goods, Too.

You, if you are a bee-keeper in Michigan.

Hives, sections, foundation, etc., that your bees will need in the spring.

NOW — this month. Between now and Thanksgiving.

It means money saved. We give 8 per cent off for November cash orders. Only five months till April 1st. Isn't that good interest?

M. H. HUNT & SON
BELL BRANCH, MICH.

8 PER CENT DISCOUNT IN NOVEMBER

We have arranged the following discounts for early

CASH ORDERS

this season:

Before December 1	8	per cent
" January 1	7	"
" February 1	6	"
" March 1	4	"
" April 1	2	"

DEALERS.—A partial list of dealers (wholesale and retail) in Root's goods will be found on the first inside cover page of this issue. A list of local dealers may be had by writing us at Medina. Save time and freight by ordering of the dealer nearest you.

These discounts are intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about ten per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books and papers, labels, and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog. ... ...

THE A. I. ROOT CO.

FACTORY AND EXECUTIVE OFFICE
MEDINA, OHIO

BRANCHES

Chicago—144 E. Erie St.
Philadelphia—10 Vine St.
New York—44 Vesey St.
Syracuse, N. Y.
Mechanic Falls, Me.
St. Paul—1024 Miss. St.
Washington, D. C.—1100 Maryland Ave.
Havana, Cuba—Obrapia 14.
Kingston, Jamaica—115 Water Lane.
Agencies everywhere—see the first inside cover page.

BEE-KEEPERS' EARLY DISCOUNTS

Now is the time to send in your order for goods for use next season, and for all orders where cash accompanies we allow the following discounts: : : : :

Before November 1	deduct 9 per cent
Before December 1	deduct 8 per cent
Before January 1	deduct 7 per cent
Before February 1	deduct 6 per cent
Before March 1	deduct 4 per cent
Before April 1	deduct 2 per cent

Freight rates from Toledo are the lowest. Can take honey and beeswax in exchange for supplies if you desire. Send for free illustrated catalog. It describes and illustrates every thing for both poultry and bee keepers. . .

GRIGGS BROTHERS

523 Monroe St., Toledo, O.

Dadant's Foundation

It Excels. We Guarantee Satisfaction.

* *

BIG DISCOUNTS

FOR EARLY ORDERS

* *

BEE-SUPPLIES OF ALL KINDS

BEESWAX WANTED AT ALL TIMES

* *

DADANT & SONS

HAMILTON, ILL.

Volume XXXIII November 15, 1905 Number 22

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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Root's Bee-keepers' Supplies at Convenient Distributing Points.

Well-known Dealers.

The dealers, whose names follow, are well known to bee-keepers. They have been, for the most part, long established in the bee-supply trade, and have a knowledge of the business most valuable indeed to the bee-keeping fraternity. Their advice may be had on any question of supplies, etc., for the asking.

The Large Stocks.

Nowhere else is it possible to find such well-assorted stocks of goods for bee-keepers as are carried by dealers in Root's Goods. No matter whether you require a little five-cent article or a carload of goods, these dealers can serve you promptly. Stocks are frequently carried amounting to $5000 and upward.

Shipping Points.

You will observe that these dealers have excellent shipping facilities—guaranteeing you quick delivery and low freight rates.

Medina Prices.

The prices, terms, discounts, etc., are identical with the home office at Medina (with rare exceptions). Full particulars may be had before ordering, if desired, by writing the dealer nearest you. You can, however, use our Medina catalog and terms, and, if any variation, your dealer will advise you, if requested, before shipping.

Other Dealers.

Besides the following list, there are many others who handle some of Root's Goods. The following is by no means complete for hundreds of dealers come to us for many of the goods of which we are the exclusive manufacturers. *Insist on getting Root's Goods.*

Local Dealers.

In addition to the following list who carry large stocks, and furnish at both *wholesale* and *retail*, we have in every State a large number of local dealers who handle our goods exclusively. As there are over 500 of these dealers, space will not permit giving their names at this time; but information will be given by us, on request, to any bee-keeper regarding the dealer nearest him handling Root's Goods.

Canada--E. Grainger & Co., Toronto, Ont.

Colorado--Fruita Fruit & Produce Association, Fruita; The L. A. Watkins Mdse. Co., Denver, Colo.

District of Columbia--The A. I. Root Company, Washington, D. C.

Georgia--Howkins & Rush, 124 Liberty St., Savannah, Ga.

Indiana--Walter S. Pouder, Indianapolis, Ind. Vickery Bros., Evansville, Ind.

Iowa--Joseph Nysewander, Des Moines, Iowa.

Illinois--The A. I. Root Company, 144 E. Erie St., Chicago, Ill.

Kansas--Carl F. Buck, Augusta, Butler Co., Kan.

Mississippi--George A. Hummer, Brazelia, Miss.

Massachusetts--F. H. Farmer, 182 Friend St., Boston, Mass. W. W. Cary & Son, Lyonsville, Mass.

Maine--The A. I. Root Company, Mechanic Falls, Me.

Maryland--Rawlings Implement Co., Baltimore, Md.

Michigan--M. H. Hunt & Son, Bell Branch; George E. Hilton, Fremont, Mich.

Minnesota--The A. I. Root Company, 1024 Mississippi St., St. Paul, Minn.

Missouri--John Nebel & Son, High Hill, Mo. Springfield Seed Co., Springfield, Mo. Blanke & Hauk, St. Louis, Mo.

New Mexico--Edward Scoggin, Carlsbad.

New York--The A. I. Root Company, Syracuse, N. Y. The A. I. Root Company, 44 Vesey St., New York City, N. Y.

Ohio--McAdams Seed Company, Columbus Grove, O. Griggs Bros., 521 Monroe St., Toledo, O. C. H. W. Weber, 2146 Central Ave., Cincinnati, O.

Pennsylvania--Prothero & Arnold, Dubois, Pa. The A. I. Root Company, 10 Vine St., Philadelphia, Pa. E. E. Pressler, 633 Lycoming St., Williamsport, Pa.

Texas--Texas Seed & Floral Co., Dallas; Udo Toepperwein, San Antonio, Tex.

Virginia—W. E. Tribbett, Spottswood, Va.

The following buy our goods in carload lots but supplement them with local-made goods.

Alabama--J. M. Jenkins, Wetumpka, Ala.

California--Calif. Nat'l Honey-producers' Ass'n, Los Angeles; Madary Planing Mill, Fresno, Cal.

Oregon--Portland Seed Co., Portland, Ore.

Texas--D. M. Edwards, Uvalde, Tex.

The A. I. Root Company, : Medina, Ohio.

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Complete stock for 1906 now on hand. Freight rates from Cincinnati are the lowest, especially for the South, as all freight now goes through Cincinnati. :: :: ::

8% DISCOUNT

For Cash Orders Received in

NOVEMBER.

This applies to all goods with exception of shipping-cases and other honey packages for current use. :: :: ::

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

Toledo.—The market on comb honey at this writing remains about the same as last quotations. The demand is good, and the supply is equal to the demand. Strictly fancy white comb brings 14 to 15 cts., with very little demand for lower grades. Extracted white clover in barrels is in good demand at from 6@6¼. Amber is also in good demand at from 5@5¼. Beeswax 26@28.

Griggs Bros.,
Nov. 6. Toledo, Ohio.

St. Louis.—Our honey market is firm on all grades with a very scant supply, especially of choice new comb honey. We quote: amber color Southern honey, 5¼@5½c per lb. in barrels; 6@6½ in cans. California light amber, 6½@7c in 5-gal. cans. Comb honey, fancy white, 14c A No. 1, 13c; No. 1, 11@12. Beeswax, 28 cents for prime.

R. Hartmann & Co.,
Nov. 7. 14 So. Second St., St. Louis, Mo.

Kansas City.—Arrivals of honey have been very heavy for the last week. Market to-day is $3.25 for No. 1. fancy white, 24 sections to the case, other grades selling at various prices according to quality. Market well supplied with extracted at 6½@7c.

C. C. Clemons & Co.,
Nov. 6. Kansas City, Mo.

Toronto.—Abundance of honey in Toronto market at present. Although sales are fairly brisk, the price is not holding out very well Considerable honey has been sold less than price asked early in the season. At present comb honey is going from $1 50 to $1 75. Extracted from 6½@7½c.

E. Grainger & Co.,
Nov. 4. Toronto, Can.

Chicago.—The conditions are practically unchanged since our past quotations, as follows: Fancy white comb selling at 14@15; other grades of it at 1c to 3c less; amber grades, 10@12. Extracted white, 6@7, amber, 5½@6½, according to quality, flavor, and package. There continues to be a good demand, with less accumulation than is usual at this season of the year.

R. A. Burnett & Co.,
Nov. 6. 199 South Water St., Chicago, Ill.

Detroit.—The market is firm and demand is good for No. 1 and fancy. Price runs about as follows: Fancy and A No. 1 comb, 12@12½; No. 1 white and amber, 11@12; darker grades, 10@11. Extracted, 6½@7. Beeswax, 26@28.

M. H. Hunt & Son,
Nov. 8. Bell Branch, Mich.

Atlanta.—This is the dull season here for honey, and very little is moving. Prices range as follows: Fancy white, 12@13; A No. 1, 11@12; No. 1, 10@11. Very little demand for extracted. Beeswax, 28.

Judson Heard & Co.,
Nov. 6. 110 So. Forsyth St., Atlanta, Ga.

Schenectady.—Both comb and extracted is moving freely, but it is difficult to get over 14c for white clover unless fancy and in paper cartons; medium grades, 12@13; buckwheat, 11@12. The quality of the latter is not as good as usual in this locality. Extracted, light, 6@7; dark, 5½@6, in kegs; 60-lb cans sell at a fraction above these prices.

Chas. McCulloch,
Nov. 10. Schenectady, N. Y.

Philadelphia.—The demand has been very good for honey in the past ten days; in fact, it takes a little sharp cool weather to get the people started, and after they start the demand continues for some months. I would say that now is the height of the consumption of the honey season. We quote, in a jobbing way, fancy comb, 15@17; No. 1, 13@15; amber, 12@13. Extracted, fancy white, 7@8; amber, 6½. Beeswax, 28. We are producers of comb honey, and do not handle on commission.

Wm. A. Selser,
Nov. 7. 10 Vine St., Philadelphia, Pa.

For Sale.—Clover or buckwheat extracted honey. Write for price, and quantity desired. Sample, 10 cts. Comb honey all sold. C. B. Howard, Romulus, N. Y.

For Sale.—A No. 1 white comb at 15 cts.; No. 1, 14 cts.; No. 2, 13 cts.; amber and buckwheat, 12 cts. Above honey is in glass-front cases, 24 sections to the case. Extracted clover, 8 cts.; amber, 7½ cts.; in new 60-lb. cans. Quirin-the-queen-breeder, Bellevue, O.

For Sale.—Buckwheat honey, in 60-lb. cans, at 6 cts.
C. J. Baldridge,
Homestead Farm, Kendaia, Seneca Co., N. Y.

For Sale.—Extracted honey—fancy white, 7 cts.; fancy amber, 6½ cts.; ¼ cent less in five-case lots or more. C. C. Clemons & Co., Kansas City, Mo.

For Sale.—Eight thousand pounds of fine table-grade extracted alfalfa honey at 6 cts. per pound, f. o. b. here. J. T. Hammersmark, Reno, Nev.

For Sale.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat. G. H. Adams, Mill St., Bellevue, Schenectady, N. Y.

For Sale.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. Hershiser, 301 Huntington Av., Buffalo, N. Y.

FANCY WHITE EXTRACTED HONEY
CRATES 2-60 LB. CANS; 8c
TWO OR MORE CRATES; 7¼
LARGER LOTS; WRITE FOR SPECIAL PRICES. ALL F. O. B. CINCINNATI. CASH WITH ORDER. SAMPLES 10c. TO PAY POSTAGE.
THE FRED W. MUTH CO.
No. 51 WALNUT STREET, CINCINNATI, OHIO.
SEND FOR CATALOG OF BEE SUPPLIES WITH SPECIAL DISCOUNT.

For Sale.—Clover and buckwheat honey, in 60-lb. cans; sample free. Jas. McNeill, Hudson, N. Y.

For Sale.—2000 lbs. buckwheat extracted honey, in barrels and 60-lb. cans, at 6c, f. o. b. Sample free. E. D. Townsend, Remus, Mich.

For Sale.—43,000 lbs. of choice extracted buckwheat honey at 6¼ cts. put up in kegs holding about 160 lbs. each. E. W. Alexander & Son, Delanson, N. Y.

For Sale.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
Hildreth & Segelken, 82 Murray St., N. Y. City.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up.
Chas. Koeppen, Fredericksburg Va.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St. New York.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

Wanted.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. Griggs Bros., Toledo, Ohio.

Wanted.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
Evans & Turner, Columbus, Ohio.

Wanted.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
Thos. C. Stanley & Son,
Manzanola, Colo., and Fairfield, Ill.

Wanted.—Comb honey; Michigan preferred.
W. D. Soper, Jackson, Mich.

Wanted.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.
M. V. Facey, Preston, Fillmore Co., Minn.

$300,000,000 in Poultry

Do you know that the government census of 1900 gives the value of the poultry in that year at very nearly $300,000,000?

POULTRY SUCCESS, the Twentieth-Century Poultry Magazine, is absolutely indispensable to every one interested in chickens, whether they be beginners, experienced poultry-raisers, or keep only a few hens. It is without question the foremost poultry monthly in this country, and readers of its articles on pure-bred chicks and their better care and keeping have come to realize that it is plain truth that there's "money in a hen." Poultry Success has from 36 to 112 pages every issue; is beautifully illustrated and printed; has best writers; 16 years old; shows how to succeed with poultry.

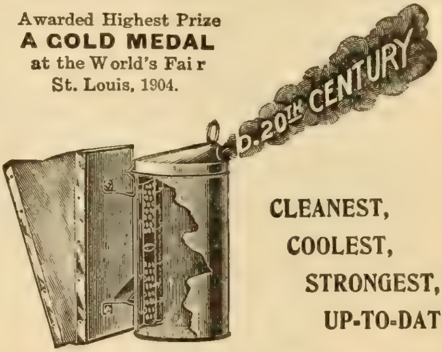
Regular Subscription Price, 50 Cents per year.

Special Offers.—If you keep chickens or are in any way interested in them, we will send Poultry Success to you for one year for introduction, and mail free also a large illustrated practical poultry book for only the regular price, 50 cents; or three months' trial, only 10 cents. Sample copy free. Address to-day,

Poultry Success Co., Dept. 24, Springfield, Ohio.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904.



**CLEANEST,
COOLEST,
STRONGEST,
UP-TO-DATE.**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order.

It has no snout to clog with soot.

It gives a light or dense volume of cool smoke, at operator's option, 3 to 5 hours at one filling.

Guarantee: Simplicity, quality, efficiency, durability.

The General Manager of the National Bee-keepers' Association wrote me:

Platteville, Wis., Oct. 28, 1904.

I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

Prices: By mail, one, $1.25; three, $3.25.
By express or freight, one, $1.00; three, $2.50.

F. DANZENBAKER, - MEDINA, OHIO.

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BEE-KEEPING
BY MAIL**

The Most Satisfactory Correspondence Course Ever Offered by a Correspondence School.

The Root Correspondence School of Bee Culture, Medina, Ohio, affiliated with The A. I. Root Co., largest maker of bee-keepers' things in the world, extends to men and women everywhere the opportunity of the present.

The course is planned especially for men and women seeking a livelihood that is not only fascinating but profitable; it also offers persons who desire to obtain a more perfect knowledge of the science of practical bee culture the best opportunity ever presented by means of correspondence.

The cost of the course is small when the actual result accruing to pupils is considered. Write to-day for prospectus giving a synopsis of the course and full information.

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**The Root
Correspondence School
of Bee Culture,**
MEDINA, O., U. S. A.

Gleanings in Bee Culture.

Devoted to Bees, Honey, and Home Interests.

Circulation 25,000. Reaches every State and sixty foreign countries.
Established in 1873. 52 pages, semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

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E. R. ROOT, Editor Apicultural Department.
J. T. CALVERT, - Business Manager.
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Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publishers.

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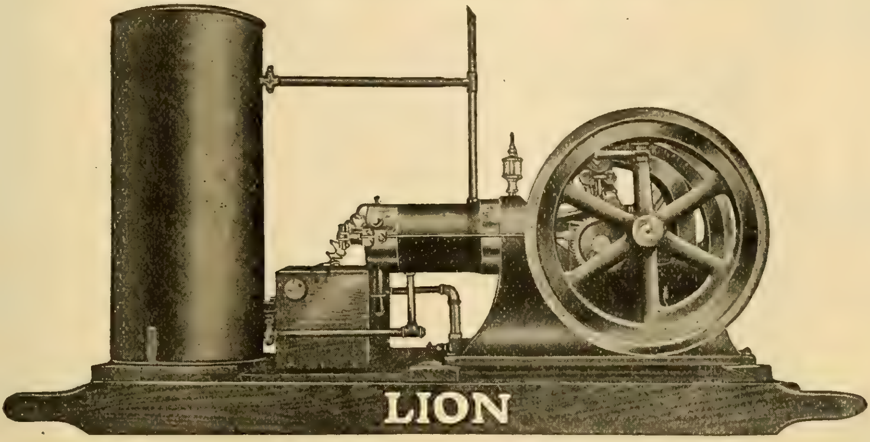
The "LION"

Gas and Gasoline Engines

Sold Direct from Factory to User



Acting on the theory that "testing is proving," we will send any responsible person, on certain very easy conditions, one of our three-horse-power gas or gasoline engines on 10 days' test trial.

This engine is no experiment, but has been proved by actual use to do any work (where the rated amount of power is required) in the most practical, reliable, safe, and economical way.

This engine is of the four-cycle type. While the engine is up to the normal speed the exhaust valve is held open, allowing free circulation of fresh air in the cylinder. The igniter and intake valve are at rest, therefore not using gasoline or batteries.

Our igniter and mixer are of the most simple and reliable character. The gasoline is always properly vaporized and the igniter point never comes together unless a spark is required.

These are points of Economy Very Important to the User

The fly-ball type of governor is used, which automatically controls the exhaust, igniter, and gasoline, also allows the speed to be changed from 100 to 600 revolutions per minute while the engine is in motion—a very superior feature.

Lion Gas and Gasoline Engines are Simplicity Simplified

They are used for all purposes where power is required—private electric lighting plants, small factories, printing-offices; farm machinery, such as cream-separators, feed-grinders, corn-shellers, wood-sawing machines, bee-hive making, power honey-extractors, and a thousand and one other purposes that can not be mentioned here.

Write Us a Letter Like This

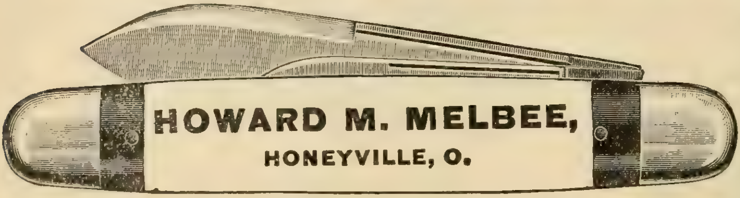
Lyons Engine Company, Lyons, Mich.
Gentlemen:—I am about to purchase a gas or gasoline engine for........................
purposes, and wish you to send me full particulars about your approval offer as advertised in "Gleanings in Bee Culture." Yours very truly, Name..........................
State .... Town..
R. F. D.................................. Street No. or P. O. Box.................

When writing please state definitely for what purpose you wish to use this engine, and whether gas or gasoline for fuel. This information is very important to us.

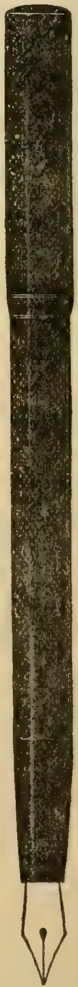
Please remember we send the engine, not the engine agent.

LYONS ENGINE CO., LYONS, MICH.

FOR YOURSELF OR AS GIFTS!

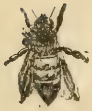


(This cut is the full size of the Knife.)



NOVELTY POCKET-KNIFE

(Name and Address on one side—Three Bees on the other side.)

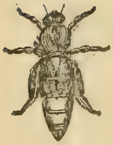


Worker

Your Name on the Knife.—When ordering, be sure to say just what name and address you wish put on the Knife.

The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed the name and residence of the owner, and on the other side pictures of a Queen, Drone, and Worker, as shown here.

The Material entering into this celebrated knife is of the very best quality; the blades are hand-forged out of the very finest English razor-steel, and we warrant every blade. It will last a life-time, with proper usage.



Queen

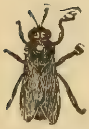
Why Own the Novelty Knife?—In case a good knife is lost, the chances are the owner will never recover it; but if the "Novelty" is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the "Novelties," your POCKET-KNIFE will serve as an identifier; and, in case of death, your relatives will at once be notified of the accident.

How to Get this Valuable Knife.—We send it postpaid for $1.25, or club the Novelty Knife and the American Bee Journal for one year—both for $2.00. (Allow two weeks for Knife order to be filled.)

◆

A SOLID GOLD FOUNTAIN PEN

Finally, we have found a good Fountain Pen that is reasonable in price. The manufacturers of this pen say that if you pay more than $1.25 for other fountain pens, it's for the name.



Drone

This pen is absolutely guaranteed to work perfectly, and give satisfaction. The Gold Nibs are 14 kt., pointed with selected Iridium. The Holders are Para Rubber, handsomely finished. The simple feeder gives a uniform flow of ink. Each pen is packed in a neat box, with directions and Filler.

We mail this **Gold Fountain Pen** for only $1.25, or for $2.00 we will mail it and the weekly American Bee Journal for a whole year.

☞ Sample copy of the American Bee Journal free; trial trip of three months (13 copies) for 20c; regular yearly price, $1.00.

Address all orders to

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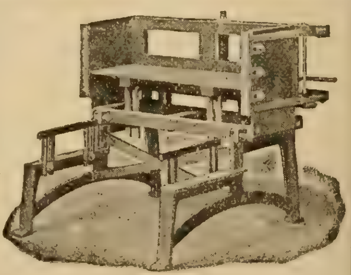
GEORGE W. YORK & CO., 334 Dearborn St., Chicago, Ill

These Blocks

were made on one of our $50 concrete building-block machines. Prices range from $50 upwards. Every machine complete with all parts ready to go to work, and guaranteed to give satisfaction. Two men make from 100 to 150 of these blocks per day. One barrel of Portland cement makes from 25 to 35 blocks. Write for descriptive circular and list.



Medina Concrete Company
Medina, Ohio

A SPECIAL OFFER

The BEE-KEEPERS' REVIEW is now making an unusually attractive offer to new subscribers. Send ten cents for three late but different issues and this may apply on any subscription sent in during the year. With the three numbers will be sent a special offer to new subscribers; also a description of the new and greatly enlarged edition of "Advanced Bee Culture," which will be out soon, and a specially low clubbing price will be offered to those who order it *now* in connection with the REVIEW.

W. Z. Hutchinson, Flint, Mich.

THIS PRIDE KING HEATING STOVE $3.90

FREIGHT PAID

This is positively the lowest price ever made for a genuine Oak Heater, fully guaranteed or money back. PRIDE KING has a draw center grate, corrugated cast iron fire pot, sheet steel body, heavy cast base and heavy cast front with large front door hung on double hinges, heavy cast swing top, heavy cast ring at joining of body and fire pot, large cast ash pit door, two screw draft regulators, and is the only stove of its kind supplied with an ash pan. The $3.90 price is for stove with wood grate; coal grate 10 cents additional, making a powerful heater that will burn wood, hard or soft coal. A beautiful stove, full nickel trimmed, as shown in cut. Write for it today—it's the best stove bargain of the season.

Ask us how you can save $150 to $250 a year on your household supplies. Others are doing it, why not you? The plan is simple—you get 10 per cent discount on everything you buy. Write today for information.

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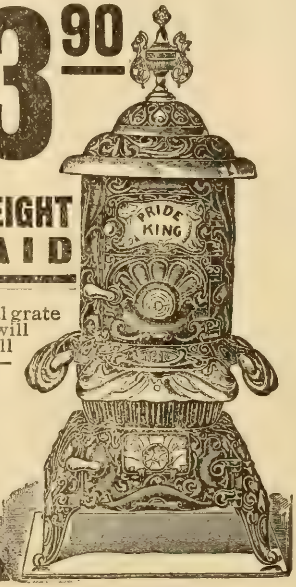

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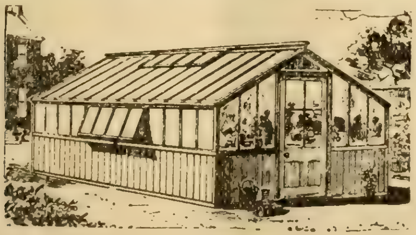

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

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Stray Straws

By Dr. C. C. Miller.

Replying to a question, p. 1117, there is scarcely any doubt that the little worm that held the young bees prisoner was a wax-worm of some kind.

An advantage of the Alexander treatment of black brood, p. 1125, is that it is so easily tried. A great many will be likely to try it next year, and before the season is over we ought to know pretty well about it, A simple cure is all the better for being simple if it is only successful.

"It always pays to requeen at least once in two years," p. 1126. That may be true as a general statement, although some do not agree to it; but if true, there are surely notable exceptions. [The word *always* should have been replaced by the word *generally*. My other statements on the point will imply exceptions to the rule. Thanks for the correction.—Ed.]

"Don't store honey in a refrigerator" is common advice. Now, does any one know from actually trying it that well-ripened honey will not keep well in a refrigerator? [Why, doctor! Don't we know that, beyond peradventure, certain conditions, such as dampness and cold as found in the average refrigerator, are detrimental? and that the converse is true—that dryness and heat are always favorable? And, further, I absolutely know of a case where honey stored in a refrigerator would candy twice as quick as that left outside of it.—Ed.]

Harry Lathrop, it may make better honey to extract the uncapped portion before uncapping, as you advise, p. 1128, but it makes a lot more work. Then still more work will be made by the increased amount demanded by consumers when the honey is all of such good character. Seriously, I'm not sure that it would not pay in the long run to extract in advance all the unsealed honey, even if it were thrown away. [This is a question that hinges a good deal on locality. In Colorado and California I would never think it necessary to extract the combs before uncapping. In most localities the unsealed cells contain honey that is perfectly ripe. I should question whether in most places the extra labor of extracting twice would be necessary.—Ed.]

"The further off toward the black we get from the three bands, the poorer the bees average for honey," says G. M. Doolittle, p. 1138. That starts some questioning. I have no doubt of its truth, with that word "average" as applying to general results all over the country. But there are exceptions to general rules; and when one finds among his bees that have gone from the three bands toward the black something that brings in the honey away ahead of any of the three-banders, should he breed from such off-colored stock, or hustle back to the three bands? Again, if getting toward the black from the three bands gives poorer bees, is it not true that the further off toward the yellow we get from the three bands the poorer the bees average for honey?

A super containing 45 1-lb. sections is favored by W. K. Morrison, p. 1130, and he asks, "If one super will do the work, why use two?" With many the difference in weight in handling is a sufficient answer to that question. It is possible that the larger super reduces the number of under-weight sections, but is that not greatly overbalanced by the fact that it largely increases the number of unfinished sections? [But a super containing 45 one-pound sections is too large to give to one colony all at once. Small supers for many localities, containing not more than 20 or 24 sections, are far better than those that are larger. If bees are to do much in comb honey they must have a compartment small enough so that they can warm it easily to the proper comb-building point with their body heat. But Mr. Morrison lives in a tropical locality, and hence his 45-section super may not be too large.—Ed.]

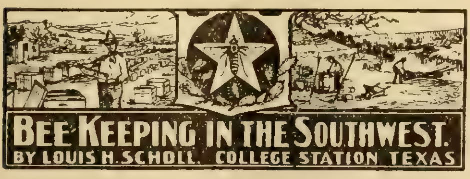
OF 160 COLONIES run for comb honey that were fair subjects for comparison, 13¾ per cent went through the season without ever offering to start queen-cells; 12½ per cent started cells one or more times, but gave it up when their cells were destroyed; and 73¾ per cent seemed so bent on swarming that they were treated by being kept queenless 10 or 15 days. The colonies that were left with their queens all the time averaged 36½ per cent more sections than those that were treated. But that's better than they would have done if left queenless for 21 days, which would be the case practically if swarms were shaken. [My! oh my, doctor! Why didn't you get your percentages closer—get them down to the hundredths of one per cent? All'e same'e, it would be far better if we could draw our conclusions from exact figures than from mere estimates or poor guesses.—ED.]

W. K. MORRISON, p. 1130, says his experience is opposed to the statement that shallower frames cause more pollen in sections, but doesn't give us particulars. Friend Morrison, the experience of myself and others has been that with Langstroth and shallower frames, side by side, there was ten times as much pollen in sections over the shallower frames. Did you have more pollen over the deeper frames when the two were side by side? The "shallow frame in England" is cited. That probably refers to the "Standard frame" in general use there. It is 8½ in. deep, outside, ⅝ shallower than the Langstroth; but the thicker bars of my Langstroth frames make the inside, or comb-room, the same in each, 8 inches. [But look here, doctor. If I am correct, your conclusions in this matter are based on the use of less than half a dozen shallow hives that I sent you, one and possibly two seasons. Thousands of shallow hives are used with very little complaint of pollen in the sections. Try fifty colonies for several seasons in shallow hives, and fifty in the standard Langstroth. I think you would find the difference not so great as you now think.—ED.]

J. A. GREEN says, p. 1121, that if sections are kept in the supers they are piled up closely together. Not by any means; blocks are put under the corners to give ventilation; that's the way I do, and also others. And I don't understand, friend Green, what advantage there is in having another set of receptacles to hold the sections. [I have been in the honey-houses of many bee-keepers; and so far as I can remember the filled supers of comb honey after removal from the hives are generally piled one on top of another in close contact. Surmounting the piles is the cover. The assigned reason for shutting up these combs bee-tight is to keep out robbers that might accidentally get into the room should the honey-house door be left open. Even if the building be well screened, and the screen door itself have self-closing hinges, there is always danger that robbers may get into the building. To this extent I believe Mr. Green is correct. If it is an advantage to have the sections exposed to dry hot air (and I thoroughly believe it is) after they are removed from the hive, then let us publish the fact far and wide. This is a good subject for discussion, and we should be glad to hear from our subscribers on the point.—ED.]

C. P. DADANT says in *American Bee Journal* that 8 or 10 pounds is a fair estimate of the honey consumed by a colony wintering in cellar, and nearly double that by a colony on summer stand in a cold winter. According to that, for the labor of carrying in and out one would get about 8 pounds of honey for each colony. Good pay. At the same time, I'd be glad to feel sure that the cellared colony is just as well off in all respects. [I believe our priend Dadant is not far from the correct estimate; but it has never been proven yet that the extra stores consumed outdoors have been wasted. There are quite a number of bee-keepers, on the other hand, who winter outdoors, who believe that the out colonies are more vigorous, have more brood, and are able to get into the supers sooner than those from the cellar. We have been making observations on this point for several years. Some seasons we feel that the outdoor-wintered bees are ahead, and others we can see no difference. My own conclusion at the present time is this: That, in case of strong colonies at least, if they be kept outdoors as late as possible, and set out as early as possible, and, when set out, protected, such bees will be ahead of those put into the cellar early and taken out late. With a good dry cellar, and a temperature under reasonable control, I feel satisfied that we could earn a bigger dividend in the saving of stores by putting our bees into such a cellar than by leaving them outdoors all winter in double-walled hives. But here, again, locality plays a very important part. Where the winters are more or less open — that is, permit of flying days in December, January, and February, then the outdoor method should by all means be used. There will be too many bees lost in the cellar in such a locality, because the cellar will be a good deal too warm at times.—ED.]

THE MAN who reads carefully that article of G. M. Doolittle, page 1137, is likely to do some thinking; and if he's as ignorant as I am he'll get more or less tangled up about race, species, variety, purity, etc. The gist of the whole article lies in that last paragraph; and insistence upon having queen-breeders send out only the best can not be commended too highly. But I wish Brother Doolittle had been just a shade more definite. He says, "We can not be certain of this best bee only through its markings;" but what are the markings? To be sure, he says, "The further off toward the black we get from the three bands, the poorer the bees average for honey," and that might be understood to mean that three bands were to be considered the standard. But there's that "toward the black," leaving it possibly to be read between the lines that getting toward the yellow would not lower the standard. But when we get away from the three bands toward the yellow, don't we have a grade just as much as when we get toward the black? The question is, "What does he consider the standard? and if three bands, then how are we to tell the three bands?" for he knocks out the A B C test, but gives us nothing else in place of it. [I do not think there are many authorities who will agree with friend Doolittle in his statement concerning Italian bees and what constitutes their purity, if I understand his position. The average Italians are three-banded, and, so far as I have observed, just as fixed as any other race of bees. Why! Carniolans sport to yellow in their native land, I am told. There are a few types among Italians that will sport toward four and five bands, and some that will show only two bands distinctly, the third being visible only when the bee is filled with honey. The fact that four and five banded bees, if left alone, will gravitate back to three bands shows that such marking is the *normal* type. Another fact is, that one and two banded bees are generally cross, and show more or less of the characteristic of the German or black race. As stated at the outset I am not entirely sure that I disagree with Mr. Doolittle, for, like yourself, I do not quite know where he stands; but from certain of his former articles I have gathered the opinion that he does not consider the Italians a pure race, and that they have no fixed type. If that is his opinion, then I think the majority of the bee-keepers of the country will disagree with him.—ED.]



BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL. COLLEGE STATION TEXAS

FOUL BROOD TO BE ERADICATED FROM TEXAS.

In the twenty-eighth General Assembly of Texas, Hon. Hal. Sevier introduced a bill known as House Bill No. 293, "An act to provide for the protection of honey-bees against foul brood, etc." A copy of this law was given on page 469 of GLEANINGS. This became a law March 30, 1903. It was put in charge of the State Entomologist; but as no appropriations were made for executing this law it could not be operated during the last two years. The last General Assembly, however, appropriated $800 a year. This law became effective September 1, 1905. For a number of years other States were provided with inspection laws and inspection officers to protect the fruit and agricultural interests of their States. Texas had no such provision until September 1, when both these laws were put into operation, the nursery-inspection law being in charge of the Commissioner of Agriculture, while the foul-brood law was placed in charge of the State Entomologist. All bee-keepers of the State are earnestly requested to co-operate with the State Entomologist, Prof. Albert F. Conradi, by making known to him all known or suspected cases of foul brood or other contagious bee diseases. Prof. Conradi has the interests of the bee-keepers at heart, and is determined to use the foul-brood law to the best possible advantage in ridding Texas of this scourge. It is present in but few localities in the State yet; and, if properly taken in hand, I believe it can soon be stamped out. This done, and further introduction prevented, the Texans can boast of their State being free of foul brood.

Such rules and regulations will be published for operating this law as to render it the most effective. Very frequently persons are inclined to look upon an inspection law as a necessary evil. This is far from being true if the law is operated in a proper manner; and with the co-operation of the bee-keepers of the State a great amount of good can be accomplished toward the eradication of foul brood, the most virulent of bee-diseases, which occurs in a number of localities in Texas.

ADDRESS THE STATE ENTOMOLOGIST.

All communications regarding matter pertaining to foul brood should be addressed, State Entomologist, College Station, Texas, and not to members of the office staff; for if such a member should be absent, reply to the communication would be delayed. This is very important. Telegrams and letters addressed to a member of the staff have been received at times when they were away, and no action could be taken on the matters in question. As the Entomologist has no authority to open communications of this kind, no immediate attention could be given. Therefore, please remember to address all official mail to the State Entomologist, because when he leaves the office there is an arrangement with the clerk to open all such mail and take such action as may be necessary. To any letters addressed to the office staff, the State Entomologist will not be responsible for immediate attention.

A NOTE OF WARNING.

Bees must be inspected before being brought into the State of Texas. At this time inquiries are received at the office of the State Entomologist from parties outside of Texas, requesting permission to ship their bees into the State for the purpose of establishing apiaries in Southwest Texas. All bee-keepers of the State are urged to read Section 4 of the Texas foul-brood law, which provides that no bee-keeper shall "barter or give away any diseased colonies of bees, honey or appliances, nor expose any other bees to the danger of infection of foul brood. Bee-keepers acquainted with the conditions of Southwest Texas should be convinced of the extreme danger connected with such a procedure. Two prominent localities of infection are known to have received foul brood from bees shipped into the State from Illinois and Iowa. Had we been in position to take proper precaution this introduction might have been avoided. For this reason a revision of section 4 of the Rules and Regulations for controlling foul brood reads as follows: "No person shall ship, barter, or give away bees, honey, or appliances, from any other State or country into this State, nor shall any person in Texas receive such unless the bees, honey, or appliances in question have been thoroughly inspected, before reaching the State, by a competent inspector; and that this inspector has made report in writing to the State Entomologist of Texas, giving in detail the condition of the apiary, and full assurance that the apiary is apparently free from contagious diseases."

DO NOT SEND SAMPLES OF DISEASED BROOD.

Bee-keepers are cautioned not to send diseased brood or comb through the mails for identification at the office of the State Entomologist. Of course, if this were done in the proper manner it might not be dangerous; but ordinarily there would be some danger of spreading the disease to other localities, and especially so should the wrapping not be sufficient to keep the material from spreading through the mail-bag. Packages of all kinds are sent to this office, hundreds a year. Many come all smashed up, some having only a newspaper around them, with the address and stamp on it. When they arrive at the office some are as flat as a piece of cardboard.

Any one having diseases among his bees is requested to write to the State Entomologist, in which case special provision will be made for sending the specimen or for visiting the apiary and inspecting it. We should not forget that the cause of foul brood is a microscopic bacterium known as *Bacillus alvei*, and the danger of infection by careless handling is great. Any one not having had experience in treating foul brood should write to the State Entomologist for instructions, or apply to some experienced bee-keeper in his neighborhood who has treated foul brood.

RULES AND REGULATIONS BY THE STATE ENTOMOLOGIST FOR OPERATING THE TEXAS FOUL-BROOD LAW.

These rules and regulations will be followed in the foul-brood-inspection work and the treatment of the disease.

1. If any owner of, or any person having control of honey-bees in the State of Texas, knows or suspects that any bees so owned or controlled are affected by foul brood or any other contagious bee disease, he shall report said fact to the State Entomologist in writing, stating the number of apiaries involved, the number of colonies in each apiary, and the number of colonies that are known or suspected to be infected with foul brood or other contagious bee disease.

2. Any owner or person having control of bees, reporting infestation, shall state the number of movable-frame hives in each apiary, also the number of box hives, or such hives as will not admit of ready examination.

3. If any bees are kept in box hives, or such other hives as will not admit of ready examination, the owner or person in charge will be notified by the State Entomologist to transfer all bees in the apiary to movable-frame hives, or such as will admit of as ready examination as any good modern-frame hive, before a specified time. If for any good reason such a time is detrimental to the apiaries involved, the reason should be transmitted in writing to the State Entomologist, whereupon a date more agreeable to the owner or person in charge may be arranged for. In the default of such transfer as provided for above, the case will be treated according to sections 1 and 2 of the Texas foul-brood law.

4. When upon inspection an apiary is found to be infested, instructions for treatment will be given. If the owner or person in charge fails to carry out such instructions, the State Entomologist or his assistants will give the necessary treatment at the expense of the owner, as provided for in section 3 of the Texas foul-brood law. Every person who intends to barter, give away, or receive bees, honey, or appliances, should make certain that no infection is carried in such transactions or shipments. Where any doubt exists, application should be made to the State Entomologist for inspecting the apiaries involved. Persons violating the provisions of this rule are deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not exceeding two hundred dollars, as provided for in Section 4 of the Texas foul-brood law.

Pickings from Our Neighbors' Fields
By
"Stenog."

THE BEE JOURNALS OF THE WORLD.

With the possible exception of poultry, the bee is the center of more journalism than any other creature cultivated as a branch of farming. This is said in reference to the whole world, for in this country the poultry journals far exceed in number those devoted to bees, while, so far as I can learn, the reverse is true of Europe as a whole. The great amount of bee literature in France and Germany in particular is due to the fact that European society is far more highly organized into guilds and unions than here, nearly every union having some journalistic mouthpiece. In some instances, if not all, the members of these organizations get a copy of their own journal free on payment of the annual dues, while others get these papers at a very low price.

France and Germany have most of the bee journals in Europe, as the French and German languages are more widely spread there than other tongues; besides, geographical location would account for that to a great extent.

Another reason for the large number of bee journals in Europe is the attention paid to apiculture by scientific men and by governmental authorities. The food supply in Europe is a serious matter, and hence we need not wonder that so important a factor as the bee is an object of great regard there. The dreadful famine in Spain, and in many districts of Russia, whereby millions of people are famished, is sufficient proof of this, to say nothing of the old saying that an English breakfast depends almost entirely on the condition of British shipping.

I have often tried to satisfy myself as to whether the bee is more profitable from the standpoint of wax or honey, but I can't do it. Somebody once wrote from Cuba that the bee would receive all the attention there it does now, even if the honey were given away, as the wax is the thing sought for. It is so much used in the arts and sciences, to say nothing of its great use in religious ceremonies, that it will probably always command a high and still higher price.

This preliminary moralizing may seem to have but little connection with bee journals, but it has much. I believe it will create a higher interest in the bee itself, as Prof. E. F. Bigelow says, page 1187, should be the case, and enhance the interest we feel in an exchange of experiences and ideas. And I like to moralize.

There are many people now in this country who kept bees in Europe; and as we are often asked concerning the addresses of foreign journals I have thought best to make out a new list of them, beginning with the French. The first I come to is entitled:

L'Apiculteur (The Bee-keeper). For me this is the most interesting of foreign exchanges outside of English. Its chief attraction to me, however, is what I find in it over the name of C. P. Dadant, of Hamilton, Ill. This journal, as some may remember, was for some years an active opponent of movable-frame hives as advocated by the elder Dadant; but he lived to see his claims more than substantiated, and his son a contributor to columns in which he himself once received many a sound drubbing. The editor is M. Sevalle, 28 Rue Serpente, Paris. This journal is the official organ of about thirteen bee-keepers' associations.

L'Abeille et sa Culture (The Bee and its Culture) is a good journal, published by M. H. Stassart, 165 Ahin, Huy, Belgium.

La Gazette Apicole de France is printed at Montfavet, Vauc ose, France.

Le Rucher Belge is printed at Liege, Belgium, by M. Strauven. It is one of the best of foreign journals, standing side by side with the one first mentioned.

Bulletin de la Societe d'Apiculture de Tunisie. This, though French, is printed in Tunis, Africa. It contains much that is peculiar to that country, and hence is of especial interest. A recent number contains a fine view of an apiary in Tunis, situated on a steep side hill. It has a modern and artistic look.

Progres Apicole is a neat little journal under the editorial charge of S. Thibaut, Mont-sur-Marchienne, Belgium. An edition in the Flemish language is also published.

Les Abeilles et les Fruits. This journal has apiculture as one of its departments, but is interesting all through. It is published at Maizieres-Chevillon, Haute-Marne, France.

Nah'la (an Arabic word for *bee*). This fine journal is printed in Algiers, Africa, hence its Arabic name. It contains much of interest peculiar to that country. Address Dr. Trabut, Algiers.

L'Abeille Bourguignonne. This is one of the leading bee journals of France, and one which is always a very welcome visitor here. Address M. Godon, Champlay par Joigny, France. It appears six times a year. The issue for November cites several remarkable cures of rheumatism effected by stings.

Editorial
By E.R. Root

It is with much regret that we learn that Clarence Dittmer, son of Gus Dittmer, of Augusta, Wis., his right-hand man in foundation work, was accidentally shot while out hunting in Kansas, the shot passing near a large artery, making the wound a very serious one. His friends, however, have hope that it will not terminate fatally, although the doctor reports the case a very critical one. The young Mr. Dittmer is a very estimable young man, and GLEANINGS hopes for his speedy recovery.

A. I. ROOT TO REAR QUEENS THIS WINTER IN FLORIDA.

As Mr. A. I. Root's health is hardly rugged enough for him to stand our Ohio winters, he and Mrs. Root will probably go to Florida. We younger "Rootites" have been urging it, but he refused to consider it until I told him the Root Co. wanted him to go south and rear queens in baby nuclei. He has about made up his mind to try the experiment. We are going to send him with some choice breeders.

Incidentally our older readers will be glad to know that the founder of The A. I. Root Co. and of GLEANINGS will go back to his old love, the bees. If we can once get him interested in the new methods of queen-rearing we shall expect some interesting developments. Just where he will locate in Florida he has not yet definitely decided.

CHANGE OF DATE FOR THE NATIONAL.

THOSE who expect to attend the next National convention in Chicago will note the change of date, this time made necessary by the change in the time of the fat-stock show. The National has to be set at the same time in order to secure low railroad rates. The convention will be held Dec. 19, 20, 21, in Brunt Hall, Bush Temple of Music, instead of the Revere House. Several members of the Root Co. will be present. We shall be glad to see all of our old friends and as many of the new ones as possible.

FEEDING BEES IN THE CELLAR.

IT will probably happen that some colonies have been neglected or overlooked, and, as a consequence, are short of stores. If it is cool or cold weather it will be no use to feed syrup in feeders in the hives outdoors; for bees will not take liquid food cool nights or during cold weather. Better wait till putting the bees in the cellar, then put a pepper-boxful of thick syrup right over the center of the cluster. Bees will take syrup in the cellar; but as they will not be able to ripen it, it is far better to feed in warm weather earlier in the fall.

If you have no cellar, and are compelled to winter outdoors some colonies that are short, lay a chunk of queen-cage candy right over the cluster on the frames. This is made by mixing powdered sugar and honey into a stiff dough; cover this up with a good warm cushion and slip a telescoping cover or tight box over the whole.

THE HONEY CROP LAST SEASON THE SHORTEST IN MANY YEARS.

THERE are many things that go to show that the honey crop for this season, when we consider the whole United States, and Cuba as well, is the shortest in many years. A month or so ago, from the best evidence in hand, it appeared that the amount of honey actually secured was about the same as last year, which was a short season. When the supply of Michigan honey is gone there will not be very much fine table honey left, in our opinion. There ought to be from now on a rapid stiffening in prices, unless, forsooth, a lot of bee-keepers are holding back, preparing to dump their crop on the market at their convenience, or as soon as they "get around to it," which will be after the holidays.

WHAT KIND OF PACKING TO USE FOR OUTDOOR WINTERING.

THIS will depend a good deal on what material is readily available. Ground cork probably stands at the head; but as it is expensive in most places we must consider it out of the question. Next in order I would place wheat chaff, next oat chaff, planer-shavings, and forest leaves. The coarser the packing material, the more of it should be used. For instance, a cushion of forest leaves should be about twice as thick as one made of good wheat chaff. Sawdust and clover chaff are a little too dense; and if they once get moist they are not inclined to dry out. We have tested all the different packing materials except ground cork, and their excellence is in the order named above.

BLACK QUEENS HARD TO FIND.

A FEW days ago a prominent queen-breeder sent us some letters from one of his customers, complaining bitterly that some Carniolan queens that he had sent them were "no good;" that he had introduced them, but when he went back to the hive he could not find them. He acknowledged that the golden Italians received at the same time were all right, and nicely introduced; but every one of the Carniolans was missing because, being worthless, the bees killed them. I was called on to arbitrate the matter. The queen-breeder averred that Carniolan queens were black, and often hard to find, and might easily escape scrutiny. I wrote to the complainant, suggesting that probably the queens were in the hives, and asked him to make another and more careful search. This he did, and was frank enough to acknowledge he had found every one of them, and begged Mr. Queenbreeder's pardon.

Right here score a point in favor of extra-yellow queens or extra-yellow stock, and a point against black stock. It is a well-known fact that black queens are always hard to find, partly because the bees are nervous, and run, and partly because the queen, not looking different from the other bees, easily escapes observation.

WHEN TO WINTER INDOORS AND WHEN TO WINTER OUTDOORS; THE VALUE OF DOUBLE-WALLED HIVES.

ALTHOUGH I have answered this question several times before, yet a number of inquiries would seem to require its repetition. Generally speaking, the indoor method should be followed in localities where the winters are more or less open — that is to say, when there are warm flying days in almost every month throughout the winter, two or three days in a month. In such a locality the occasional warm days would cause a good deal of trouble in the bee-cellar, which would necessarily be affected by the outside temperature to a great extent.. If the cellar be too warm, running up to 60 some of the time, there will be a good many bees flying out and dying on the cellar bottom. On the other hand, in localities where the winter remains cold, below a freezing temperature for practically three months or more, then the indoor plan should be followed, to save stores if nothing more. While bees *can* be wintered outdoors if warmly packed in double-walled hives in cold climates, the consumption of stores is something enormous. But even then I would use the outdoor plan if I did not have a good dry cellar where the temperature could be kept under reasonable control — not lower than 40 nor above 55.

When there are a good many flying days in the winter, and the bees can gather natural pollen as early as the first of March or the latter part of February, they may be wintered in single-walled hives; but even then there ought to be a super on top filled with packing material. The top of the hive should be kept warm, for this is far more important than keeping the sides protected and not the top; but in almost *any* locality a double-walled hive will save stores and bring the bees out in better condition in the spring. It is always advisable, *where it can be done,* to put cellared bees into protecting cases when they are set out in the spring.

From some observations we have been making, it almost seems as if the double-walled hive would pay for itself even in summer. Rainy weather or cool nights, even in summer, have a very depressing effect on a colony that ought to be busy at work in the supers; yet because those supers are not sufficiently protected the bees will draw down in the brood-nest and waste valuable time.

THE HONEY-MARKET.

It is gratifying to us to note by the number of letters which have reached our office within the last ten days from bee-keepers and dealers in the clover belt, that is to say, from the Mississipi Valley east and north from the Ohio River, that there is a decidedly favorable tone to the market for Eastern honey. So far as our information goes, a very large percentage of the better grades has left the hands of the producers, and dealers have only fair stocks.

In this connection, we are led to remark that we have often noticed, and many times have called attention to it, that even with a dull market fancy honey is not a drug. To be sure, we have been criticised when we have made this statement, a good many times. Our critics, however, have not been able to say that their honey was fancy in every respect. Either the quality was lacking, or the manner in which it was put up, or some other condition by which it failed to bring a good price and ready sale.

COST OF POOR SHIPPING-CASES.

Too much can not be said in favor of extreme care in putting up a fancy article. Look into any first-class grocery-store and see how much care is taken in putting up the fine grades of well-known goods. No cheap packages are tolerated, even though the product is an article which sells for not more than ten or fifteen cents. We lately had a letter from a well-known bee-keeper who visited one of the large city markets and saw some honey put up in cheap home-made cases. He made no criticism of the honey; indeed, I believe it was a nice article, for it was produced in one of the best clover sections of Michigan. It was, however, put up in cheap cases. I presume the cases would not cost more than about one-third the price of the standard 24-lb. shipping-case as listed by various manufacturers. The merchant, however, admitted that this honey would have to be sold at from one to two cents per *pound less* than its real value on account of the cases it was in. The actual cost of the best shipping-case on the market would not be more than three-fourths of a cent for each pound of honey contained in the case, while the poorest case would cost, we will say, three-eighths of a cent. Therefore, for a saving of three-eighths of a cent per pound, the producer was actually losing from one to two cents per pound, according to the statement of the honey-merchant himself.

PRODUCING FANCY HONEY.

Now that the busy season is past, and plans are being laid for a new year, we want to urge again the importance of selecting good hives with the best supers, so that the crop produced will have the largest percentage of fancy honey that it is possible to obtain. Ill-fitting separators or poorly constructed supers often result in the production of a crop of No. 1 honey, while a slight additional expenditure of time and money might give a crop of fancy honey instead. True, the season may influence this to some extent; but poorly made supers, allowing the escape of heat, and bulged combs, occasioned by poor separators, or none at all, often turn a crop of fancy honey into No. 1; and whatever may be said of the condition of the honey market, it is *always* true that No. 1 honey has slower sale than fancy, and, of course, at a less price. Furthermore, the poorer the condition of the market the greater is the difference in the price of these two grades. With an active market, the difference between No. 1 and fancy may be figured at about one cent per pound. With a dull market there is often a difference of two cents per pound. This, of course, affects very materially the profits of the bee-keeper, a greater part of which could have been saved by the selection of suitable appliances.

ADULTERATED BEESWAX.

As a general thing, wax shipped to us in large or small lots is pure; but occasionally we get hold of a shipment that contains either tallow or paraffine. All such we reject of course. One whole barrel came from a bee-keeper recently who had evidently bought it believing it to be pure. When it reached us, examination showed that it was but little better than ordinary sealingwax. As nearly as we could determine, it contained pitch, crude oil, rosin, paraffine, and, in fact, a little of every thing of a waxy nature. Now, we know positively that the man who sent this barrel is absolutely honest, for he would not knowingly send us adulterated wax. In buying up wax, bee-keepers ought always to be careful of whom they buy, and then examine every cake. Wax containing tallow will smell like old grease, and it will feel greasy on the outside. That which contains paraffine is quite liable to escape detection. It is usually of a very bright and partly transparent color; looks very nice—nice enough, in fact, to pass for first grade; but if it be chewed, instead of crumbling up in a few minutes it will act like chewing-gum.

CAUCASIAN BEES; IF GENTLENESS WERE THEIR ONLY REDEEMING QUALITY WOULD THAT BE SUFFICIENT REASON FOR INTRODUCING THEM INTO THIS COUNTRY?

I BELIEVE it is generally admitted that Caucasian bees are gentle; but how much more amiable they may be than the average Italians is not yet made clear. As a matter of fact there are some strains of yellow bees that are as gentle as one ought to desire; that is, they will offer attack *only* when the hive is bunglingly or roughly opened or the frames unnecessarily bumped or dropped. If a colony of bees is gentle enough with ordinarily decent intelligent management, what more do we want? If a hive of Caucasians will stand all kinds of rough treatment—a treatment that no reasonable person would say was necessary, and yet lack good wintering and honey-gathering qualities, wouldn't we say that we prefer to have bees that are a little crosser, and yet which will be perfectly gentle with proper handling? Admitting that the Caucasians are gentler than the average strains of Italians (and I do not know that that claim is proved yet), there is one serious objection to these bees; namely, that they look so much like the common black bees of this country (at least those have that I have seen) it would be simply impossible to distinguish between the two races by the markings only. Then how could we distinguish the common hybrid (Italian and black) from a crossing of Italians and Caucasians?

It is to be presumed that the average queen-breeder is honest; but not all of them are disposed to be liberal in their treatment of customers. Let us assume, for example, that Jones is rearing Caucasians in a locality where there are some blacks in the woods and among his neighbors' bees. How can he guarantee pure tested queens of Caucasians to his customers? If he were not strictly honest would he try to palm off half-bloods for pure? Breeders of this race should be located in an isolated place or on some island. In addition the customer should have some assurance that the man or the firm will sell only pure blood.

I am well aware that the same objection might apply to Carniolans (though to a lesser extent), and I may say this has been a very serious one. But pure Carniolans are easily distinguished from pure blacks; and it may be that Caucasians are, but those I have seen are not.

Now, having said this much I am not disposed to say we should make no effort to propagate this race in this country. Even if they had only the one redeeming quality (gentleness) there would be a demand for them from beginners and city people. There are not enough of these bees here yet to warrant positive conclusions; but I say this: *If* Caucasian bees look so nearly like the German or black bee that even experts will be puzzled to tell one from the other, it will be a serious drawback. On the other hand, Italians have certain definite and distinctive markings (I do not quite agree with our friend Doolittle on this point), and any variation in the average type showing more or less than the three yellow bands can be recognized on sight.

TOO MUCH VS. LITTLE OR NO VENTILATION IN BEE-CELLARS.

THE editor of the *Review* is inclined to believe that bees do not need very much ventilation in the cellar, and cites various instances to show how colonies have been wintered with closed entrances, and in buried clamps where little or no air could get to the bees. Some men can drink to excess all their lives, and yet not seem to suffer much from it. But these cases do not prove that drinking to excess is harmless.

While there are some cellars and some conditions where little ventilation may be required, I believe the *average* bee-keeper would lose more bees with little or no ventilation than with too much. Bees are warm-blooded animals like ourselves, and vitiate enormous quantities of air in a comparatively short time. Why, the bees in our shop cellar get so uneasy without fresh air that I verily believe they would crawl over the cellar bottom and die by the tens of thousands. We keep that inner compartment ventilated all the time, and the number of bees on the floor are so few that one can walk through between the hives clear up into February and yet step on hardly a bee. We have tried to shut up the cellar for a day or two, but it was always attended by bad air and an uneasy roar. In a word, I believe it would be safer for the *average* person to err on the side of plenty of ventilation than not enough of it. More people suffer from hard colds because of a lack of good air than because of too much of it. Bad air is always a foe to good health.

The fact that *some* colonies have wintered successfully with absolutely closed entrances, as cited by Mr. Hutchinson, does not prove that this would be good practice generally. Last year some fifty of our outdoor colonies accidentally got their entrances closed with ice for only a month. Result, *nearly all of them died*, while all those with *free* entrances came through in good shape.

GENERAL
CORRESPONDENCE.

THE CONTROL OF SWARMING.

A Device Designed to Keep Down Increase while Securing a Crop of Honey, and Requeening if Desirable. A Valuable Article.

BY J. E. CHAMBERS.

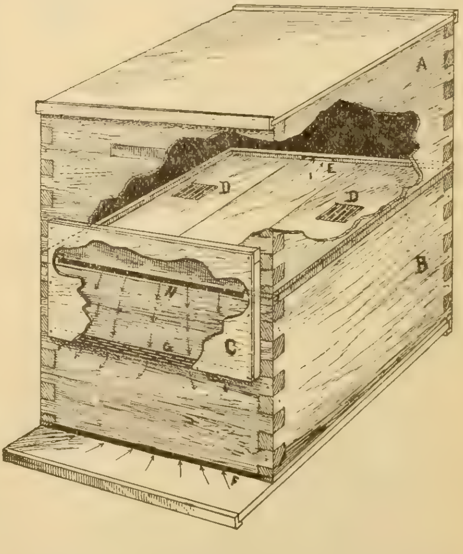
During the past three years I have made a good many experiments in trying to perfect a simple mechanical device and to evolve a system of manipulation to go with it that would enable the apiarist to control swarming effectually, secure a crop of honey, and requeen his colonies at one and the same time; and having met with good success along the lines of my experimenting I have concluded to tell the bee-keeping public the results of my work. In doing so I am aware that much of it is not new, and perhaps not original; but I also know that no living man has covered exactly the ground that I have in this work, nor has any other man ever given out any thing that aimed at accomplishing the three vital objects just named.

In the illustrations, A represents the top story of a hive, and B the bottom, or the lower story, with the dividing-board and chute in correct position on the hive; and the entire construction and method of application are so clearly shown that any extended description is unnecessary.

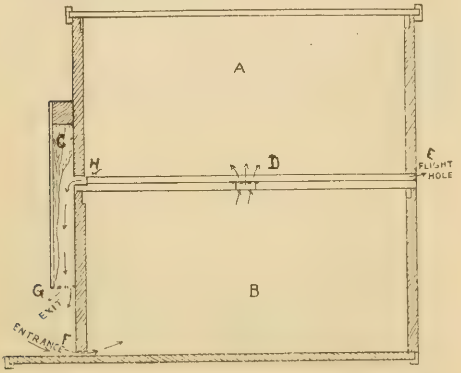
The dividing-board is simply a board cleated on the two upper sides and rear end. The front end is not cleated, and forms the opening shown at H. Two passage-holes are bored through, and covered with zinc, as shown at D D. The purpose of these holes is to maintain a certain degree of communication between the two hive-bodies, and to guard against the possibility of the young bees in hive A deserting in too great force. In the rear end of the dividing-board a small opening covered with zinc is shown at E. This serves as a flight-hole, and helps to arrest and fix a certain number of bees; for by numerous experiments I found that, without these holes to act as counter-checks, the entire force will desert from hive A above, thus leaving the brood and queen unprotected to starve; but through the holes D D sufficient nurse bees come up from hive B to prevent this, and this trouble is overcome.

The chute is made by nailing together two pieces of timber, 1×1, 6 in. long, and one piece 1×1, 14 in. long, and covering one side by nailing on a thin board 6 in. wide and 14 long, as shown at C, and attaching a strip of zinc one inch wide and 14 long over the exit, shown at G. For deep hives it might be advisable to make the chute a little deeper than 6 inches, in order to bring the flight of outgoing young bees down nearer to the entrance shown at F, thereby causing them to mix up with the field force going in there; but in no case should the exit G be nearer to the entrance F than 4 in.; for if brought in direct contact it might induce some of the bees to go back by the route they came, though the perforated zinc acts as a great check on such an attempt.

In using this device there are three different systems of manipulating, any one of which can be used with good results. The one I use mostly in my own apiaries is, I think, the best and easiest for extracting colonies; but for comb honey either of the others is better. Just as soon as a colony makes preparations to swarm I begin work. Selecting one comb and adhering bees I make sure that the queen is not on it. This comb should contain two or three cells well started. I now place this comb in the center of the hive represented by B, and fill up the vacant spaces with empty combs or full sheets of foundation, as bees working under these conditions can not be depended on to build combs. I now place the dividing-board in position, as shown in the illustration, and set hive A over it. Nailing on the chute completes the operation for the present, except that a record of the stage of development in which the cells were at the time of manipulating must be kept, and should be marked on the hive so as to be readily seen. With this record to go by, the hive can be opened at the proper time and all cells cut, except one of the best. The hive is then closed, and requires no further attention until time to remove the dividing-board and reunite the colony, which is as soon after the young queen begins to lay as possible. However, it is not absolutely necessary to be exact in this matter, as no harm will result if both queens are left in



the hives for a considerable time; but with me I prefer to remove the board in order to finish up the operation and give the young queen full sway at once. One important point to be considered in using this plan is that, should the young queen be lost on her mating-flight, as you have the old queen to fall back upon no great damage will result. I consider the requeening feature a most important one, as I have seldom known a colony with a young queen to make much effort at swarming, and in this locality not one colony in a thousand will swarm after this manipulation.



When running for comb honey I have found it best to use starters in the lower hive, B, just the same as in brushed swarming, except giving no frame of brood; but shake the old queen in front of the entrance F, and put the case of sections directly on hive B, and the dividing-board over the sections, and hive A on top of all. In this way it will be necessary to give a mature queen-cell from some other source, as the constant desertion of bees from hive A will leave it in poor condition to rear good cells. In this case it will, of course, be necessary to uncover the flight-hole E to allow the young queen to mate, after which the old queen can be removed and the whole force reunited, or you can allow the bees to remove the old queen by simply exchanging hives a day or two before taking away the dividing-board.

There is still another manipulation possible; and if it is desirable to requeen from choice stock, or to change stock, I recommend it in preference to the above plan; and as the colonies having mostly drones will be zinc-covered, there will be but little trouble from undesirable drones flying. In this last operation proceed as in the first, but give four frames of as nearly sealed brood as can be gotten; and as soon as cells are well under construction remove the larvæ in them and graft with larvæ from the desired stock. A few colonies treated thus will furnish all the choice cells you need; and when you manipulate a colony, give one of these choice cells. I advise the use of cell-protectors, for bees will sometimes destroy cells, even when queenless; and a cell-protector insures acceptance. Proceed in this way through the entire apiary; and by the time the young queens are ready to mate you will have all bad drones behind zinc, and the fine queens will be almost sure to meet the right drones.

In this article I have but barely outlined the possibilities of this simple device and system; in fact, I am constantly finding out more about it, and expect to be able to improve it in several ways; but as it is now, I think it far ahead of any other non-swarming device that I know of.

When rearing queens for requeening, a cell-bar containing the Doolittle dipped cups can be used if desired. Simply use the royal jelly found in the natural cell-cups, to prime the artificial cups, and then transfer your choice larvæ to them and place in between the combs of brood, and you will get as fine cells as by any method in existence.

In conclusion I will say that it is my practice, when running for extracted honey, either to give more room or extract as soon as the young queens begin laying. All will keep this in mind, as a crowded house is often a prolific cause of trouble.

Vigo, Texas.

THE TRUTH ABOUT CAUCASIAN BEES.

My First Season's Experience with them.

BY D. EVERETT LYON, PH.D.

In the *American Bee-keeper* for October I notice that the new Caucasian bees are referred to as "the most worthless race of bees that has ever been offered to the American public;" and lest a false impression be given concerning this noble race I desire to enter a most emphatic protest.

Without hard feeling, I am inclined to believe pretty strongly that the gentleman who gave the above characterization of Caucasians is entirely ignorant of an acquaintance with them, or else he never possessed the pure Caucasians.

Will the writer of the above-quoted paragraph tell us whether he has actually handled and studied the habits of Caucasians? or is he taking the opinion of some one else? My experience with them is just the opposite, and I *know* that they are not a worthless race of bees, but, on the contrary, a valuable acquisition to present valuable races.

Mr. Frank Benton, the government apiarist at Washington, in a letter to the writer, states that they are the gentlest of all races; are good honey-gatherers, holding their own with the Italians in this respect, and can be manipulated without smoke, veil, or gloves.

This season I gave them a thorough trial as to gentleness — pulled hive-lid off, jarred the frames, and, even when they were being robbed during late fall, due to carelessness in leaving some honey exposed, even under these conditions I shook them from their combs in front of their hives to test their tempers, and I have yet to record the first sting.

Now, why will a magazine like the *American Bee-keeper* come out and try to give such a race a black eye?

I suppose it is because they are a new race (I mean, of course, the bees) that they are thus attacked; and I am told that, when the Italians were first discovered or brought out in this country, they were denied the qualities we now know that they possess.

Perhaps the friend who writes against Caucasians imagined he had Caucasian bees when, perchance, they might have been a cross, or the queen had not been purely mated before he got her.

I personally am inclined to think that he did not have any real Caucasians at all. I know they are far being a worthless race.

Mr. E. L. Pratt, of Swarthmore, Pa., has some 38 colonies of pure Caucasian bees, and he has not found them worthless; and his experience and word have great weight with me, for I consider him one of the brainiest bee-keepers in this or any other country, and without an equal in practical knowledge of the habits of the honey-bee.

Give the Caucasians a chance; and before any one condemns them, let him be sure that he has pure Caucasians and not a hybrid.

CAUCASIAN BEES.

Gentle and Industrious, but Bad Propolizers.

BY J. G. BAUMGAERTNER.

On page 1067 the *American Bee-keeper* is quoted as not being in favor of the Caucasian bees. As it may be interesting to receive other reports regarding this race of bees I will give my experience. I have one colony of Caucasians. The queen is very prolific, although she is smaller than most other queens. The workers are exceedingly gentle — so much so that I can at any time of the day open the hive, and jar and shake the combs, without smoke or veil. When one frame is taken out, and bees shaken back over the rest of the frames, they will not fly up, but run right down between the frames. I have never seen any bees that were less inclined to boil over.

They protect their hive well, equal to the Italians. They are uniform in color, but a trifle smaller than other races.

Regarding their working qualities, I had only limited opportunity of testing them, as this year was a total failure. During the four or five days when Spanish needle was in bloom, before the rain spoiled it, I watched them closely, and compared them with other colonies of equal strength (Italians, Carniolans, and Holy Lands), and had the impression that they did as well as any of their competitors. But when it came to gluing up the hive they were at the head too, and in this respect I am displeased with them. However, I am of the opinion that, if the average run of Caucasians are up to the colony I possess, we have reason to be grateful to the U. S. Department of Agriculture for its efforts in obtaining this extremely gentle race of bees; for, even if they are not superior to some of the other races of bees in working capacity, and the average bee-keeper could get along very well without them, they are, nevertheless, an acquisition to city bee-keepers, where a colony of them could even be kept on the back porch, providing it were placed high enough so little children could not take them in hand. These are also the bees for the timid beginner or the lady bee-keeper.

HOME-MADE WINTERING-CASES; THE USE OF ROOFING PAPER.

I wonder if those 30-cent home-made chaff hives of Mr. McGlade's, page 1078, are better than the wintering-cases I made this fall. I bought some three-ply tar roofing-paper for $1.25 per roll, and got some dry-goods-boxes, which would usually cost ten cents apiece. However, this time I got them for the hauling. They were made of ⅝, ½, and one inch stuff. I took every thing that was large enough and too large. The big ones I cut down to the required size. They were made large enough to go down over the hive and leave two or three inches of space all around and on top. Now, these boxes were covered with tar roofing. One roll of paper is just enough to cover eight cases for eight-frame L. hives; so the paper for each box cost about 15½ cents. In preparing the hives for winter I let the bees seal down the cover hermetically (no quilt under it); next, old newspapers or old carpet paper, if folded, in several layers, over and around the hive. On top of this are put old carpets, gunny sacks, etc., sufficiently thick to fill out the space between the hive and case, which is now slipped down over the whole. When the packing is finished, the apiary presents a neat appearance, and these case sought to last a number of years too. Should the weather affect the paper after a few years, it will not be a great expense to give them a coat or two of the asbestos preparation used on roofs, and then they would be as good as new.

But what is of greatest importance, thus packed the bees will be as warm as or warmer than any chaff hive can keep them; and paper and gunny sacks will not cause such a litter in the yard in spring, when unpacking is going on, as chaff or sawdust would. Of course, some will argue that, with such air-tight packing, there is no upward ventilation. But I don't believe there is as much in this upward-ventilation theory as some think. Where is the upward ventilation in the old box hives or in most of the hollow trees, where bees winter perfectly?

New Memphis, Ill., Oct. 20.

[Your winter cases are cheap and good, friend B. I think you will find that they will work well too.—Ed.]

ITALIAN BEES.

Meaning of the Term "Thoroughbred;" a Reply to Doolittle's Statement, Page 1025.

BY JAMES M. PULLEY.

Regarding the use of the word "thoroughbred" in connection with breeding, breeders of fancy stock apply it generally to stock that is of the same breed for three or more generations; for instance, the American Kennel Club admit for registration dogs that can show a clean pedigree of three or more generations — that is, without a foreign cross. Breeders of other stock are governed in a somewhat similar manner, except when the register is first started — as, for instance, when the American Hackney Stud-book was started, I think half-bred mares were eligible (I write from memory), such mares being registered as "half-breds."

Without considering the Standard or any other dictionary, a breeder generally considers a thoroughbred as one having no blood of another race, or no traceable blood of another race. Going on this ground I should hardly agree with Mr. Doolittle's expression, page 1025, lines 54, 55, 56, "that the Italian was *not* a pure race of bees, but a mongrel or thoroughbred." I fancy brother Doolittle has warmed up the breeders of all kinds of fancy stock by coupling these two words as though they meant one and the same thing.

In breeding parlance, a mongrel, as I understand it, is the combination of two varieties, while a thoroughbred is the careful selection, mating, and production from one variety. It therefore follows that, as long as pure Italians were used, the product would remain of the Italian variety, whether they were men or bees or any other genus.

WHAT IS RED-CLOVER STOCK?

Page 1028 Mr. R. Stuehck asks, "Red-clover stock — what is it?" My experience is that it is the gentlest of all the varieties of honey-bees that have come under my notice. I requeened from a premium red-clover queen I got with my renewal of GLEANINGS in 1904. The queens were a dark lot, and I thought I had made a mistake in a frame of brood; but it was the middle of September, 1904, and too late to raise a fresh lot with any degree of certainty of their mating, so I let them stay. The severe winter killed a number of colonies, but it left me practically all red-clovers, which proved their hardiness. Then I began to find out I could handle them differently, almost without smoke. They went into supers readily when there was a good force behind them, while some others near, with more bees, swarmed, and I have had but one swarm with eight hives, spring count, left after the severe winter. From one of these queens I got an artificial increase of one colony, three 24-lb. sections of honey, and one section on the increase. This was a city lot in a city of 15,000, and a 25-acre pond near by.

NON-SWARMING.

The red-clover bees are evidently strong as non-swarmers. On all colonies of fair to medium strength in May, 1905, I put extra hive-bodies, having full combs, over the regular hive-body. This kept queens busy, and prevented swarming. After raising queens I divided and put a new queen on the old stand and a super on top of the old stand.

FORMATION OF NUCLEI.

I formed these by adopting a regular super so that 13 small frames would fit in it crosswise, with a syrup-feeder running lengthwise (in case of necessity, but did not use it this season). This super was put in between two hive-bodies (eight-frame), full sheets of foundation on super-frames, which latter were made from the shallow extracting-frames. When these small frames were full of brood the upper story and old queen were removed. The remaining body and super of small frames stayed on the old stand, and in ten days they were ready to make nuclei of with ripe queen-cells ready to hatch. The entrance was smoked, and the frames with bees (plenty of them) were put three to a nucleus. There were bees of all ages, and they stayed on their respective new stands most successfully, and in every instance a queen hatched. In two cases *two* apparently hatched in each, and both were missing. Eighty per cent of the remaining queens mated successfully, and successive brood laid by them hatched out nearly equal to full colonies where the queen stayed a few days. With one exception there was plenty of honey in each nucleus all the time, the exception being one that was robbed out. If another queen or queen-cell was not added to a nucleus after taking a laying queen away, the queen-cells started always failed of hatching, evidently lacking heat. I am trying to winter a couple of extra queens by gathering the small nuclei-frames together into supers — bees, honey, and all; and by having a regular box feeder inside I can add to their store by feeding syrup if necessary.

Melrose, Mass., Oct. 5.

[Our old friend Doolittle, I fear, is hardly orthodox in his designation of thoroughbreds and what constitutes pure Italians. See answer to a Straw on this subject in this issue.—ED.]

A PLAN TO PREVENT SWARMING, AND TO RUN FOR COMB HONEY.

Producing Comb and Extracted Honey at the Same Time.

BY J. G. BAUMGAERTNER.

Mr. Root:—I wish to submit to you for criticism the following plan for handling eight-frame Langstroth hives:

I will first describe my situation, "so you may the better judge." I am located in Clinton Co., Ill. The chief-honey bearing flora here are white clover during spring and summer months; during fall, Spanish needle, heartsease, goldenrod, and some other wild flowers. Maple, fruit-trees, willows, and persimmons help along a little in spring. Now, if all these could be depended on, or if only white clover and Spanish needle would always yield in their season, I should get along pretty well with my eight-frame hives, using one story as brood-chamber under the comb-honey supers. Too often, however, the one or the other flow is cut short, or fails entirely, or the suspense between clover and the fall flow is so long (the clover being dried out during July and August) that the bees run out of stores in these small hives. There I am—a timber humming with wild bees two miles off, and small apiaries all around me. Outdoor feeding is out of the question, as strange bees would get more than my own. Of course, feeding in the hive can be done, and has to be done, but it is a nuisance, and requires too much work and precious time. Would not a great deal of this trouble and annoyance be avoided by using larger hives where a greater amount of stores could be kept near the brood handy for the bees to draw on than is practicable in an ordinary eight-frame hive? For this reason a ten-frame hive would probably be better; yet a ten-frame hive with a new swarm, on one-inch starters, would have to be too much contracted for best results in producing comb honey, as sections over dummies are not well filled. For this and other reasons I prefer an eight-frame hive for comb honey. By keeping plenty of filled combs on hand, colonies short of stores could be helped out without having to resort to the sticky job of feeding syrup every time. But if I don't see the whole thing wrong, please tell me; if I do, work could be saved and many other advantages gained by the following plan, which I have tried on only a limited scale, but with apparent success.

Furnish each eight-frame brood-chamber with one section of the Heddon hive (or some shallow extracting-super) to go on top. Many good queens in spring fill more than eight frames; but such a half-depth story will give almost any queen enough additional room and will keep the hive sufficiently from being crowded and the bees from swarming till the main flow opens; and I think it is preferable to adding a full-sized story, as the bees build up faster in spring when they have not too much room at a time. Of course, there will be some colonies that do not need more than eight frames till the flow opens; but let even those work in this upper section a while before a super is given. It will give them the "upstairs fever," and when the super is put on they will enter it more readily, especially if they are Italians.

Now, when the flow is well on, these upper sections will contain quite a little honey and some brood. Now shake out the bees and pile these sections six to ten high on weak colonies which will soon be strengthened by brood hatching in these sections. If ample ventilation is given, these piles ought not to swarm, but hold big colonies which will fill them. The other hives are now in fine condition for super work. There will not be that rim of honey between the top-bars of the frames and the brood. That rim of honey was in the upper section, which is off; and if the bees want some honey above the brood they have to put it in the supers, where we want the light honey. Thus the work in the sections will be taken up faster; and should a drouth overtake the bees during the summer, and the honey in the eight-frame hives become exhausted, as was the case here last summer, those half-depth stories can be gotten and put on again with the honey they contain, and the bees will not be obliged to empty the supers and stain the sections. If there is a fall flow, get one of these upper half-stories filled for each hive besides the honey the brood-chamber contains; for, better give the bees too much than too little. If, next spring, it is not all needed it will do no harm. It might be needed even during the summer; and I think it is an advantage, especially if bees are wintered outside, to have this horizontal passage through the brood-nest. Thus I can keep my eight-frame Langstroth brood-nest during the summer. I don't want any thing smaller to hive new swarms in, and have a divided chamber to winter in.

Many a more experienced brother might smile at some of my notions; but when you get your foot in it as I did this year—foul brood, starvation, absconding, and a few more doubtfully pleasant things—well, it sets you at planning; and as we are sometimes liable to improve from hay to straw when we adopt something new, I take the liberty of asking your kind advice in the matter I have mentioned.

New Memphis, Ill., Oct. 18.

[Your plan is perfectly feasible; in fact, if you will turn to some of our back volumes you will find where, some four or five years ago, I advocated something very similar to this. My plan was not so much to keep down swarming as to get sulky colonies to work in the supers. I advocated giving such a super of shallow extracting-combs; then, when the bees got nicely started in them to work, taking it away and giving them a super of sections containing full sheets. In almost every case the bees would go into such supers with a rush. The extracting-combs partly filled were put on to other hives as coaxers to get the bees to go above. When they got nicely to work, the same coaxer was put on to another hive for the same purpose. When the combs were capped over they were set aside to be extracted, and other combs used to take their place.

Several modifications of this plan have been proposed, and the one you describe is one of them. If the supers are taken off soon enough there will be but very little brood reared in them. I found that an ordinary eight-frame brood-nest would give a queen all the room she required, providing there was room above in which to store the surplus honey that was brought in, giving her practically all the space below; and I would, therefore, suggest that you proceed with the view of getting only honey in the extracting-combs, endeavoring to keep the queen in the lower hive. In this way you keep down increase, and at the same time get both comb and extracted honey.—ED.]

CANDIED HONEY.

Cutting Up Large Chunks of Honey into Bricks Not a Success; a Fancy Article Not Wanted.

BY E. F. ATWATER.

When I read of your success with brick honey last spring I decided to experiment on a few cans of granulated alfalfa honey, which I had carried over to supply my local trade. I bought some butter-wrappers, and with the help of my father we went to work to reduce those solid blocks of honey to a more desirable shape. One wire, with a strong lever, was too slow and dauby, so we fastened several wires to a strong stick just under the work-bench. The wires were passed up through a crack in the bench. The loose ends of the wires were fastened to a strong 2×4 cross-piece. About twenty inches apart, under the bench, we attached the ends of two strong levers about five feet long, and to these we attached the cross-piece. Next we made a grooved (or, rather, slotted) board on which to place the block of honey. We cut the can from a sixty-pound block of honey, placed the honey on the slotted board, adjusted the wires and slotted spacers and applied the pressure to the levers, but it did not cut.

Next we attached a grain-sack full of stones to each lever, and patiently waited. If we had done no more we might have been waiting yet. The wires cut a little way into the upper corners of the honey. Finally we added our own weight to the levers, and the wires that did not break at last went through the honey. But such a sticky, messy job! First, taking off the can mashes some honey; then the wires mash some, not leaving a clean-cut surface as does the Aikin bag when removed from our honey; then the paddle to separate the cakes does more damage, and then the wrapping.

If you have alfalfa honey that is so easily cut with that $50 machine it must have qualities different from ours. I'd rather pour the honey into the 20-oz. cartons and let it harden there. Wouldn't that be the easier and better way, for *the producer* at least?

But our home market will *not* pay a fancy price for a fancy article of *honey* — not one in one thousand. Aikin bags, tin cans, etc., sell best here. I still have a few bottles left, and have to sell fancy bottled honey as cheap as in bags or cans, and that means a loss.

As to the filthy method of setting up a block of honey in a grocer's window, and cutting off chunks with a wire—think of the unwholesome dust (tobacco, consumption, etc.) it must gather; nor will *our* merchants go to any such trouble. Almost every thing eatable is in cans or cartons or glass, and the trade in bulk goods in open barrels or boxes is rightly becoming a thing of the past.

Meridian, Idaho.

[It is barely possible that your Idaho alfalfa is not adapted to cutting up into bricks, but I hardly think so. We have cut up Idaho, Colorado, Arizona, and Nevada alfalfa with equal facility. Of course, it is well to bear in mind that *some* alfalfa candied honey is too soft and some too hard. It should be as hard and firm as cold butter. When of the right consistency honey will cut up into nice bricks, which, when wrapped in paraffine paper, look decidedly appetizing and attractive.

Pardon me, friend Atwater; but from a reading of your article I do not think you followed directions. In the first place, you can not use any thing but the *very best piano wire* of 20 gauge. If the wire is much larger than this it will mash the honey; if smaller it will break.

In the second place, a home-made extemporized arrangement, such as you describe, would hardly give you opportunity for a fair test. While you can cut up a can of alfalfa honey with a single wire by hand, yet the results are more satisfactory when we use a regular butter-cutter that is made especially for the dairy trade. These are made of heavy cast iron, with all the moving parts very carefully machined. The wires can be stretched to the right tautness by means of adjustable screws, and right here is a very important point. I feel satisfied that, if you will try it again, using a regular dairy butter-cutter, you will succeed. But you must go at it, not with the idea that you are going to fail, but that you will have success. If you do not care to go to the expense of buying such a machine outright, rent one and we will pay any reasonable rental price providing you will send us a report of the experiment.

The Aikin honey-bags are all right, and for a certain class of trade they are *the* thing; but for the *fancy* trade, honey put up in brick form in gilded cartons is "the thing" also. Our bricks sell in the cities at 30 cts. apiece, and there is good money in them.—ED.]

CAN ANY WAX-PRESS GET ALL THE WAX OUT OF SLUMGUM?

BY ARTHUR C. MILLER.

In the advertisements of the Root Company's wax-press it is said that it secures all the wax. May I be permitted to express my dissent from that claim? No compression will force from a mass of such material as that of old combs all the fluids contained therein, and the pressure possible to apply in a wax-press is comparatively slight. The very fact that a stirring of the mass of hot combs after they have been once pressed yields more wax on again pressing proves that pressing does not squeeze out all the wax. The larger the press and the greater the mass of material in it, the greater the amount of wax retained in the slumgum. The per cent of retained wax under the most careful pressing and persistent "clawing" over is large, and wax is too valuable an article to be wasted, In my own case I have always sold all I could produce for 50 cents a pound; and from personal investigation I am satisfied that in all cities and most large towns a good market at that price can be found. It is the regular retail price for the "pure" wax of commerce, and many a manufacturer will gladly pay more than 50 cents if he is sure of getting an absolutely pure article. The various substitutes and adulterants will not do the work of the pure article, and several lines of trade find it absolutely necessary to have pure beeswax. Beeswax is used by jewelry manufacturers, saddlers, trunk and bag makers, tailors, and in many other trades. It is really surprising how many different industries use it and how much they use of it.

It may be impolitic to publish this, for it doubtless will lessen the available domestic supply for the foundation-makers. With a possible increase of 60 to 100 per cent in the revenue from wax it is quite worth while for bee-keepers to exert themselves to produce all possible; and it is further worth their while to use the least wasteful and least laborious method for its extraction.

You may recall, Mr. Editor, that when you were in Boston last we discussed wax-extractors; and that I suggested some changes which appeared to you rather radical, but still worth considering. Since then your company has developed the press, while I have worked along other lines. I have proved the inefficiency and wastefulness of a press, and have discovered that the solution of the problem lies in some of the principles I mentionod to you before.

But be the method of extraction what it may, let us urge the more profitable marketing of what we do produce.

Providence, R. I., Oct. 14.

[We have a method which we believe to be quite infallible for detecting the presence of wax that may be left in slumgum. Although we may be mistaken, we believe that, when the directions are carefully followed, all the wax available by any process can be secured by the press. Wax, if present in slumgum, can be detected in the following very simple manner: After the refuse has been treated, and is supposed to be clean, take a small handful of it and squeeze it while hot as it can be borne. If there is the least particle of wax left in the portion so pressed, it will show in the fine grooving of the skin of the palm and between the fingers.—ED.]

NOISE AND OTHER DISTURBANCES.

The Studying of Bees and Other Insects for the Mere Love of Them.

BY EDWARD F. BIGELOW.

Mr. Root:—Your Dr. C. C. Miller blew a "Straw" in just a little the wrong breeze when he states that I made "a strong plea for tanging," and shows that he is looking at the matter from a little different point of view than what I had in mind when he inquires "whether he really thinks tanging advisable."

It seems to me that the utilitarian phases —the what to do and how to do it — of the honey-bees have had and are still having full justice done to them. From the practical standpoint of modern bee-keeping I neither advise nor do not advise calling in all the neighbors and enlisting their muscles in denting a fair share of the tin pans in the house. The *methods* of artificial or of natural swarming are another matter.

I am inquiring into the natural history—*the mental make-up* of the honey-bee. What I want to know is what basis in fact is there for the ludicrous antics and pandemonium of our fathers and grandfathers—and their entire families — at the time of a "runaway" swarm. The question as I view it is, whether that custom was founded on the nature of the honey-bee or on some unknown and forgotten edict originally given to proclaim ownership of the swarm. The funny papers, the newspapers, and certain writers in books practically claim that this ancient custom made fools of our ancestors, and proclaims as such any family who continues the custom at the present time. I claim that the custom arose and was continued in actual relation to the honey-bee. That is all. Please strip your mind for a minute of the utilitarian phases and consider this matter of pure science, if I may so call it. Since the article was published, a bee-keeper of long experience personally laughed at my idea of "advocating" this ancient and ridiculous custom. I am not advocating any method. I am trying to know the honey-bee as a "Nature Study" topic; so I do put in a "strong plea," not as to whether you shall leave the mirror on the wall, the pans in the pantry, nor the gun in the corner, but for more in GLEANINGS than how to do it or how not to do it, various details of honey-extractors, shipping-cases, and prices of honey. Let's know more of the honey-bee. Let's put *interest* into the subject. Nowadays we hear and read a great deal about teaching elementary agriculture, not only to raise better crops but to keep better the boys and girls on the farm. Beyond the drudgery and the utilitarian phases, show the interest. Money isn't every thing. I want our bee-keepers to use heads and hearts as well as hands.

So far as I have seen, my article was the only one that has been published denying that bee-keepers who made pandemonium at time of escaping swarms were fools. The funny papers, etc., have had full unchallenged sway long enough.

An extended article in a recent number of *The Outlook* practically proclaims that bees are fools, and not a word of protest from those who know all about bees, and have admired and loved them for decades! I have been watching anxiously for some of our veteran bee-keepers to reply to that article. For several years I have been a subscriber and reader of various periodicals in bee culture, and I must allege that very little do I find on the bees. Most of it is on ways and means of making money by bees.

Are you really a *bee* lover? Seriously let me ask you that question—not you who have just become infatuated with the subject, but you who have kept bees for years.

"Absurd," you say; "of course I love bees—nothing I enjoy better."

Well, glad you do—shake, brother; but before we part let me give you one little test. You needn't answer me. Answer it in your own mind.

"How many colonies of bees would you keep if they produced no honey, no wax, nothing salable or eatable?"

And yet I have known many people who have kept earthworms for many a year, and have studied and talked enthusiastically of their wonderful habits. Seldom, if ever, would they tell how to keep them, or, at least, they didn't talk extendedly and eternally of that. I know one man who studied bumble-bees for many years, and he wasn't in search of honey either. The same statements might be made of enthusiastic lovers of dragonflies, butterflies, grasshoppers, potato-bugs, birds, plants, etc. But where are those who study and love honey-bees for themselves? I do not doubt that there are plenty of them. What I put in a plea for is that they show up more in GLEANINGS and in other similar periodicals that come to my desk.

Regarding the noise *after* clustering, I had known it as a last resort when the bees had refused to go in or stay in the hive provided. Bees usually first cluster not far from the mother-hive, anyway, before taking to the longer flight to the woods. My experience, mostly in boyhood days, was that the noise was made when the bees were bidding "good by" to the keeper's apiary, not when they were coming out of the hive, clustering all right near it.

Yours in the love and study of honey-bees, as well as of all other objects in nature; for "every thing is fish that comes to the net of a naturalist."

Stamford, Conn.

[I had intended to reply to that article in the *Outlook*, and, indeed, did prepare such a one, but finally withheld it for the reason that this was one of the harmless lies, although disgusting to the practical bee-keeper, who knows better.

Regarding the history of the tanging subject, the following article will throw much light on the matter.—ED.]

NOISE AND SWARMING BEES.

Quotations Showing that the Beating of Tin Pans, etc., at the Issue of a Swarm is an Extremely Old Custom.

BY COL. H. J. O. WALKER.

With reference to Professor Bigelow's article, p. 957, there is no doubt that attempting to arrest the flight of swarms by making various noises was a settled practice with the old Greek and Roman bee-keepers. It may well be that to the far-reaching invasions of Roman armies and the military colonies subsequently established should be attributed its universal adoption by the European nations affected, such as Germany, Spain, and France, as also its introduction into Great Britain, and so onward into North America. Another, and perhaps a more powerful reason for inferring a survival of the system and ideas of the ancient Romans on bees and bee-keeping is the fact that, nearly up to the end of the sixteenth century, the works of their classic agricultural writers were the sole existing anthorities on the subject. For more than a hundred years after the first printing-press was set up by Caxton at Westminster no original work on bee-keeping was published in England. This would not, however, affect the country folk, whose guide, until comparatively recent times, must have been mainly tradition.

The quotations that follow, while helping to support my theory, will show that the effect of "tanging" on the nerves of the hive-bee, and its advantage, if any, to bee-keepers, have always been held doubtful. Virgil and Ovid held it to be an attraction, and from the latter poet we gather that the mythological origin of the domestication of bees was the capture of a swarm by Bacchus and his followers when traveling among the hills of Rhodope. Attracted by the clanging cymbals it was hived successfully in a hollow tree. Again, in the collection of agricultural lore entitled *Geoponica*, which may be taken as representing the earliest and best methods of Grecian bee-keeping, it is stated that "proper harmony is grateful to this animal." On the other hand, the great authorities Varro and Paladius consider the effect of the bee-keeper's noise intimidating. Aristotle, greatest of all, proclaims himself uncertain on this point, and indeed doubts whether bees have any real sense of hearing.

Nickel Jacob, the best German bee-master of his time, wrote in 1563, though I quote from a later edition: "Bee-keepers make a noise with bells and basins, throw earth, and sprinkle water. I do nothing." In the anonymous "Traite des Mouches a Miel," Paris, 1690, we find: "Everybody knows that the sound of kettles, basins, pans, and drums arrests the flight of bees . . . . giving the idea of a tempest." Don Diego de Torres, in his "Arte nuevo de aumentar colmenas," Madrid, 1747, mentions the common use for this purpose of "frying-pans, timbrels, flutes, or any other kind of noise or pastoral music."

Turning to our own old masters, and passing over Thomas Hill, 1568, who relied solely on the classic authors, we have Edmund Southerne, London, 1593, stoutly maintaining that "to keepe a stirre and lay on with a Bason, Kettle, or Frying-pan is to take great paines and have little thankes." The editor of GLEANINGS should refer once more to his valuable 1609 edition of Butler's Treatise, to find (No. 30, Chap. V.) that "it is a common fashion to make a harsh noise with a pan, kettle, bason, or other like thing, thereby to stay them from flying away." In the next edition of his Treatise, London, 1623, Butler states that the original cause of this custom was to establish "a just and open claime laid unto the Swarme, that otherwise some false neighbour might challenge for his." Purchas in "A Theatre of Politicall Flying-Insects," London, 1657, adopts the same view, and with but few exceptions all subsequent writers of note agree.

Ringing and tanging have not yet quite died out in our rural districts. I myself, in the enthusiasm which I am glad to say the hum of a rising swarm can still kindle within me, have "played them a fit of mirth" (Butler again) with poker and shovel. I have also tried to head off the bees by a shot from a small fowling-piece, but I can only recommend this weapon as useful in bringing down a clustered swarm, branch and all, from a tree. Under ordinary circumstances I fall in with the editor and use a garden syringe.

King Alfred's law of swarming is, I fear, but a pleasant flight of fancy.

Leeford, Budleigh-Salterton, England.

THE ALEXANDER METHOD OF INCREASE.

Why F. L. Day Failed.

BY E. W. ALEXANDER.

In justice to myself and the method of making increase that I recommended in the April 15th issue of GLEANINGS, I wish to say a few words to friend F. L. Day, as he, in the Oct. 1st issue, condemns what is now called the Alexander method of increase. In that article of April 15th I said, "Now leave them about ten or eleven days in this shape, during which time the queen will get a fine lot of brood started in the lower hive, and every egg and particle of larva that was in the old hive on top will have matured so it will be capped over and saved; then separate them, putting the old hive on a new stand."

Now, instead of leaving them only ten or eleven days, as I advised, friend Day leaves them from the 22d of April until June 1st — some 39 days, which changes the nature of the whole operation, and shows very decidedly that the excluders he uses are worthless as queen-excluders, for we all know that the queens he speaks of as being about ready to hatch in the upper hive on the day he separated them must have been newly laid eggs only 15½ days before, which also shows that the queens he thought were shut below in the under hive were having full swing in each; therefore the only change the four colonies had by his manipulation was to give them an additional set of combs, whereby, in the course of a month, they had a large amount of maturing brood which was the cause of their swarming. I can hardly see how he could have fixed them in any better way to swarm naturally and continually than he did.

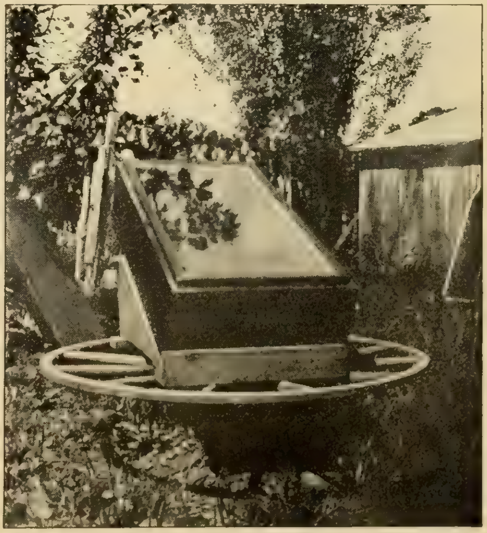
Now a few words to all who try new methods which the writers for our bee journals recommend. Either carry out those methods to the letter or let them alone; don't mix up a lot of your own ideas with those of others, and then condemn the writer for not giving a practicable method, as friend Day has just done in this case. I find this is the worst feature connected with writing for our bee journals — so many bee-keepers with limited experience will undertake to put in practice some new method, and frequently omit some of the most essential parts, thereby making a perfect failure of what otherwise would have been a perfect success.

In conclusion I will say that, during the last three months, I have received dozens of very complimentary letters from parties who have adopted this method of making their increase, at the same time securing a large amount of surplus honey.

Delanson, N. Y.

HOW A SOLAR WAX-EXTRACTOR IS KEPT TURNED TOWARD THE SUN.

I inclose a photo of my Doolittle solar wax-extractor. I took an old buggy-wheel and put it on a post set in the ground, and arranged the extractor on it, so that it can be turned with the sun. It also keeps the box off the ground so that it will last longer.



JAS. T. SHACKELFORD.

Napton, Mo., Aug. 26.

COMB AND EXTRACTED HONEY.

Producing Both in the Same Super.

BY G. C. GREINER.

The principle of producing comb and extracted honey in the same super at the same time has been in my mind for several years; and when Mr. Townsend's article on this subject appeared in GLEANINGS, page 594, I had all preparations made to test the matter this past season. The photographs were taken at about the same time, either just before or soon after said article appeared. It was just before the white-clover season opened, which can be seen by the fact that only a few supers had been placed on the hives, and these few were for observation. I conceived the idea independently of any thing I ever read or heard of on the subject, so that I may justly claim to be, if not *the* originator, at least *one* of the originators of that plan.

The section-holders, of which a number are shown in Fig. 2, are about the same as those we used years ago for side-storing in the brood-chamber. They are the usual wide frames the same size as the brood-frames, holding two tiers of four 4⅛×5 sections each, with two corresponding separators nailed permanently to one side. The hive on the left, Fig. 1, is arranged in this, brood-chamber fashion—one section-holder on each side, and five extracting-combs to fill out the space between. This, of course, is not the proper way if we expect to harvest any comb honey; but for experiment's sake I ran a couple of hives in this way, and was not disappointed when I found at the close of the honey season, although honey had been stored quite lively in the combs, that not a sign of any work had been done in the sections. The starters had not even been touched.

With the other arrangement, shown on the hive at the right, I was more successful, but not to the extent a person would expect after reading Mr. T.'s article. It is my impression that the glowing terms with which he portrays his achievements are not all the representations of actual experience, but a well-seasoned mixture of facts and theory, unless his bees in Michigan act very differently from ours here in Western New York.

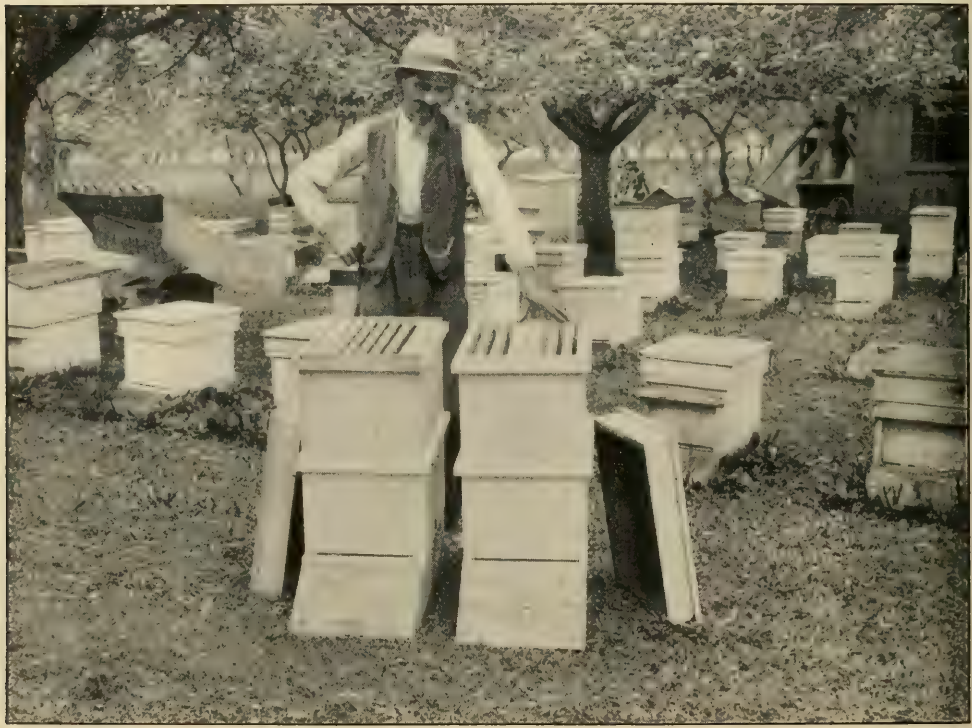


FIG. 1.—COMB AND EXTRACTED HONEY IN THE SAME SUPER.

Instead of sections being placed at the sides, a double tier of broad frames, containing 16 sections in all, takes the center, and two extracting-combs on each side fill out the super. The illustration gives it in this way; but, in reality, when placed on the colony the width of the super is reduced by a ⅜-inch division-board, otherwise the combination would give the combs too much space from center to center, and an additional comb on one side would crowd them too much.

This double tier (our illustration shows three of them at the right), consists of two single frames clamped together with open sides toward one another; but as I am a little cranky on the separator question, believing that desirable sections in regard to shape and weight can be produced between separators only, loose separators are placed between. The frame on the left has the lower one set in its place. Both are held in position vertically by little blocks nailed to the end-bar, and the little galvanized iron hooks, with a couple of ⅜-inch wire nails for hinge and catch, answer the double purpose of keeping the separators from moving endwise and holding the frames together.

The starters I used in this case are about 2 in. wide and the full width of the sections in length. This is a larger piece than I generally use, for I believe, or, rather, I am convinced, that the less foundation the better the honey; but I meant to be liberal with my bees and give them all the chance I could conscientiously.

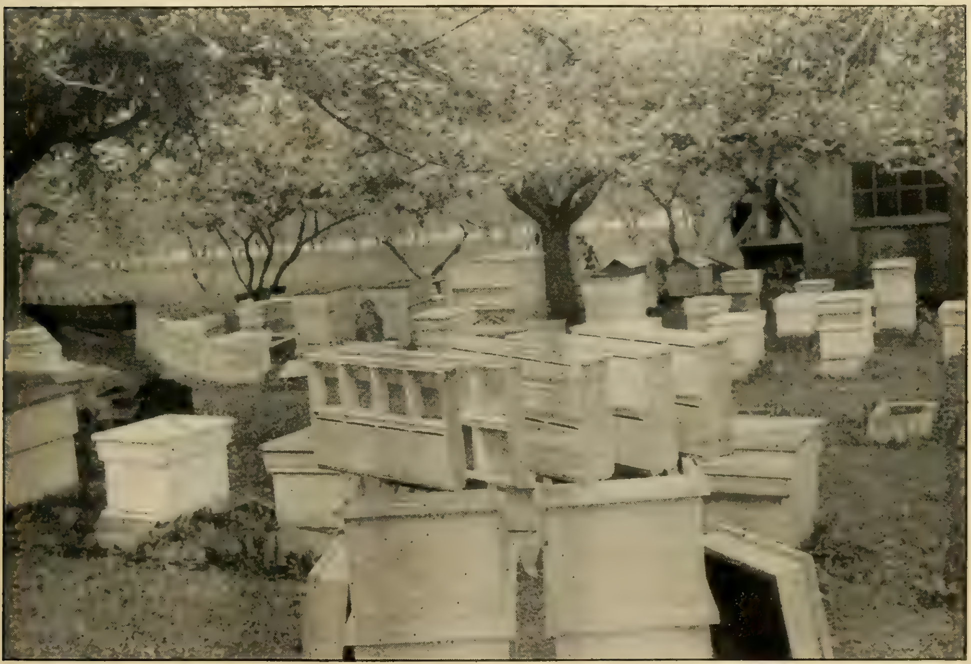


FIG. 2.—COMB AND EXTRACTED HONEY IN THE SAME SUPER.

After making these preparations and spending my time watching these colonies all through the season, I can not say that I am very much elated over the results of my investigations. I have taken a very few finished sections from some of the hives, quite a quantity of unfinished honey that would pass in Texas or Kansas, if cut out, as chunk honey, and a fair amount of drawn-out and enlarged starters with more or less honey that will make extra-fine bait-combs another year.

The secret of making bees work in sections I have not discovered yet. As long as I kept these colonies supplied with empty combs by exchanging those where capping had started with empty ones, they would do very little in the sections; and if I tried to crowd them into the sections for want of empty combs they would make preparations for swarming and do so.

But I am by no means discouraged. I shall continue my investigations with more thoroughness, if possible, next year. We had a very moderate honey-flow this past season. At no time did honey come in fast enough to induce extensive comb-building, although quite a little of it was stored all along in empty combs. During a more bountiful honey-flow bees would undoubtedly act very differently.

There is another point which I intend to investigate quite closely. As the illustration plainly shows, I use solid separators; and the only connection between the different rows of sections, as well as between the sections and extracting-combs, are the bee-ways above and below each row of sections. This secludedness may not suit the bees as well as the open space between the combs, and may be the reason for their not taking to the sections more readily. I expect to rig up a fair portion of my section-holders with open separators, either perforated or fence, and perhaps use some without any, and, contrary to my convictions, with full sheets of foundation.

UNDER WHAT CONDITIONS ONE CAN AFFORD TO MAKE HIS OWN HIVES.

Before closing this article I would ask permission to digress a little and speak of two features which have been the subject of discussion at different times by two prominent members of the bee-keeping fraternity. I invite the reader, Mr. Hutchinson in particular, to notice the mechanical points of the apiarian outfit represented by our illustrations. Every thing seen in the line of hives and appliances is home-made Mr. H.'s argument in favor of bee-keepers making their own hives is all right in some cases, but not in general. We have power-saws and all necessary attachments to cut up hive material in workmanlike manner; otherwise it would be cheaper and more convenient for us, and for all bee-keepers who have not these facilities at their command, to call on some of our leading manufacturing establishments for their supplies.

Then, again, the paint question is well illustrated. Some of the hives have been in use nearly 30 years, and from outward appearance would pass for recently made goods. With the same care they bid fair to last for several generations yet to come. Their state of preservation is directly due to an occasional coat of paint. Mr. Doolittle's anti-paint theory may save a little expense at first, but in the long run it is, in my opinion, misplaced economy. It is conceded by all careful business men that the judicious outlay of paint, especially if applied as a protection against atmospheric influences, is a paying investment.

BEE-TREE HUNTING.

SWEET CLOVER AS A HONEY-PLANT.

La Salle, N. Y.

[As you suggest in your article, it would seem more probable that you would have secured better results if you had had a more open separator. Bees do not like a big double-tier wide frame, or, if you please, a Langstroth frame all cut up with little divisions. This fact was clearly demonstrated to us last summer with our small baby nucleus frames in large Langstroth frames. Now, if you make eight of them two inches wide, and put solid separators between each set of frames, you are introducing conditions not altogether liked by the bees. It is true that, years ago, we produced comb honey with just such appliances; but single-tier supers, where the heat can be confined, and supers are more open, give better results as a rule.

In regard to the subject of hiving-making, the correspondence in our office shows that you are right. One can not afford to make his own hives *unless* he has foot-power buzz-saws, with a full equipment of gauges, and, I might add, some mechanical skill besides. —Ed.]

BEE-TREE HUNTING.

How to Make a Bee-hunting Box.

The picture I am sending you speaks for itself. This is an apple-tree out in an old pasture lot.

The way we hunt bees here, we have a box in two parts, the bottom having some comb with honey diluted with water, or we use a little oil of anise, as this draws the bees, and they come back better. The top part of the box rests over the bottom. We catch a bee in the top part of the box, put it on the box, draw a slide, and let the bee down on the honey; tilt the lid back a little; set them up on a stick about eight feet long or high, and wait for Mrs. Bee to come out with her load. If the tree is near enough to pay to look for she will be back in from nine to fifteen minutes. I never had one come back in less than six minutes, and they were only about fifty rods away. After several get to working on a line, and are coming back in good time, I usually have another box. I catch all I can that are in the box at work; set box No. 2 up on the stick, and move several rods to the right or left, as may be most convenient, and set them up again. In this way you get a cross-line, and we can generally find them in half a day, and sometimes less. Hunting bees isn't a profitable business, but there is real sport in it and I enjoy it. **Frank P. Stowe.**

Seymour, Conn., Aug. 9.

[The bee-hunting box you describe is quite similar in principle to the one shown in our A B C of Bee Culture. It is very satisfactory for the purpose.—Ed.]

SWEET CLOVER GROWING TO A GREAT HEIGHT.

Mr. Root:—Inclosed you will find a picture of a bunch of sweet clover. You can see it is very tall. I am five feet ten inches, and the picture shows how much taller the clover is. It almost reaches the electric wires, as you see, which are on the usual length of poles. This clover is just roaring with bees.

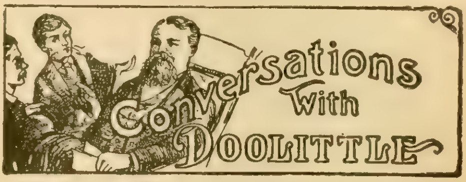
One peculiar thing about my keeping bees is this: To the best of my knowledge I have never had a swarm get up and leave. This, certainly, is through no good management of mine, and I do not claim to have any control over the bees in this way.

Joseph Egge.

Willamette, Ore., July 20, 1905.

[This is certainly a large growth of sweet clover. I have seen it on the top of some yellow clay embankments just as high. It thrives best where nothing else grows, and hence can never be a noxious weed.

If any one can show a taller specimen we should be glad to have him send a picture of it.—Ed.]



FIXING HIVES FOR CELLAR WINTERING.

"Good evening, Mr. Doolittle. Evenings are getting longer now."

"Yes, Mr. Smith; these longer evenings remind me that winter will soon be upon us. Take it as a whole we have had a pleasant summer and fall, and I think that we should have had a good honey year had it not happened that our cool rainy spells came just at the time the honey-producing bloom was at its height."

"I quite agree. Those rainy spells came right in the center of the clover bloom, in the center of the basswood bloom, and in the center of the buckwheat bloom. It rarely happens thus with all of the bloom which is likely to give us a surplus of honey."

"That is right. But what was especially on your mind this evening? You rarely come over unless you have some particular topic you wish to talk upon."

"These long evenings and cool weather set me to thinking about putting the bees in the cellar. I have not been satisfied with the way my bees winter."

"In what respect?"

"There are too many bees dead on the bottom-boards each spring, these dead bees often going up between the ranges of comb to such an extent that some of the center combs are moldy and nearly rotten at the bottom. It doesn't seem to me that such a condition is best for the bees, to say nothing about the combs, so I came over this evening to see if you could not help me out in the matter."

"You do not leave the hives down on the bottom-boards during the winter as they were in summer, do you?"

"That is the way I have always done. Please tell me how you fix the hives for cellar wintering, as to roof and bottoms."

"The tops are left just as they were during the summer except that the shade-board is left on the summer-stand."

"What? Do you take the cap or hood in the cellar?"

"Where hives have a cap or hood this is left on the stand with the shade-boards, but of late years I have not used hives having these."

"And the loose bottom-boards — do you take these in the cellar?"

"No. Do your hives have a cap and loose bottom-boards?"

"Part do. But this year I have a part of my bees in hives without caps, and with the Dr. Miller bottom-boards. I wish to know about each."

"With those hives having a cap and loose bottom-boards the bees will winter best with both left on the summer stands. Then you will put on the cellar bottom a sort of stand made by making a frame out of 2×8 stuff, set the eight-inch way up, so as to raise the first hives set in, up eight inches from the cellar bottom."

"Do you make a frame for each hive, or a continuous frame running the length of the cellar?"

"With this mode of wintering it makes very little difference; for, as you will see when I explain a little further, the hives are all connected together."

"Excuse me, but I wished to know of all these little things."

"Having the 2×8 frame down ready for the bees, the first hives brought in and placed on this are spaced nearly their width apart, so that, when the next tier of hives are brought in they can be set so their lower edges rest on the upper edges of the two other hives below, this leaving the bottom all open for ventilation, and so that the dead bees, which have troubled you, will fall out of the hive and off out of the way."

"Oh, my! why have I not thought of that before? No more moldy stinking combs. Surely I will adopt that. But go on."

"There is little more to be said in the matter, only that the next tier or row rests on the edges of those below, and so on till the top of the cellar is reached."

"And this gives a space eight inches deep below the first hives on the frame, and nearly the size of a hive of space under all the rest, all out to the open."

"Yes, that is right; and all the objection I find with this way of wintering is that it allows the dirt and dead bees from the upper hives to fall on the tops of those below, thus making them foul and look bad ever afterward. But I overcome this objection by spreading newspapers on the tops of all the hives, except the upper tier. These papers keep the tops clean, help to take up the moisture from the cellar, and enable me to gather up a large share of the dead bees in the spring, when gathering up the papers."

"That is quite an idea. But now about those having the Miller bottom-boards. You know that these boards have a bee-space on the 'summer' side, and a two-inch space on the 'winter' side."

"Yes, I know all about the Dr. Miller bottom-boards, for I have adopted them entirely, and consider them one of the *bright* inventions of the age."

"Tell me about fixing these."

"Having such bottom-boards, on some warm day when the bees are flying, a week or two before you expect to put them into winter quarters reverse all the bottom-boards in the apiary, putting a piece of thin stuff, having an entrance ½×5 inches in it, to fill the open space at the front of the hive till they are set in the cellar, when this little thin board is to be taken off. This keeps them snug and warm, and prevents robbing as well."

"How is this kept in place?"

"A small nail driven partly in will hold it, and the little board will pull the nail out when the board is removed in setting in the cellar."

"But what holds the bottom-board to the hive while setting in the cellar?"

"What are called 'tobacco staples' are used. These are like the double-pointed carpet-tacks, only much larger. I use the 1¼-inch. One of the points is driven into the upper edge of the bottom-board, and the other into the lower edge of the hive, one on either side, and this secures the bottom-board to the hive so that we have no trouble till they are removed to reverse the board again in the spring."

"Well, that is easy; and this two-inch space allows good ventilation, a place for the dead bees to fall, and the bottom-board keeps the tops of all hives on which they are piled clean. Hurrah!"

"That is right; and of all the methods of piling and fixing in the cellar, I like this the best."

"But how about the mice and rats? It would seem that, with either of these plans of wintering, they could go where they please under these hives."

"With the first plan they can; and the only way is to keep them trapped off where that is used."

"But how is it helped with the Miller board?"

"Very easy; and this renders the Miller board doubly valuable where bees are wintered in a house cellar, at the out-apiary, as I always do mine, instead of carting them home."

"Tell me about it."

"Cut a saw-kerf in each of the two inner sides of the winter side of the bottom-board, so this kerf will come at the front edge of the hive when the hive is placed ready for winter, and into this kerf slip the right-sized piece of wire cloth, having a ⅜-inch mesh, and your hive is mouse and rat proof, no matter how many your friend of the out-apiary cellar may care to tolerate among his vegetables; and this wire-cloth gives room for ventilation and dead bees just the same as if it were not there."

"Another good thing. But the clock is striking ten, and I must be going. How quick the evening has gone!"

GOOD TIME IN INTRODUCING.

I removed a very prolific black queen; and while the hive was open I placed an Italian queen in the cage between the frames. Just 72 hours from tho first examination I found her liberated and at home. Who can beat it for time? The Italian was a laying queen. **M. L. Brewer.**

Philo, Ill.

Heads of Grain
from different fields

CAN WOOD BE SPLIT IN THE SAME CELLAR WITH THE BEES?

1. I keep my bees in the cellar. Do you think it will do harm to them if I split wood in the cellar, 15 or 20 feet from the hives?

2. Give me your idea about wintering my bees, and what I ought to do with them in order to keep them good and strong.

Appleton, Wis. GEO. BREITRICK.

[1. I do not think that the splitting of wood occasionally in your cellar would have any serious effect on the bees, especially if you did it at regular intervals and every day. The bees would make a buzz or roar, possbily, at the first splitting; but they would very soon get so they would pay no attention to it.

2. Your cellar ought to be dry, and capable of maintaing a temperature not higher than 50 nor lower than 40 degrees Fahrenheit. If the bees get uneasy, ventilate the outer cellar or the other end, then let the air into the inner cellar. If there be no outer cellar, let in fresh air direct from outdoors. This can be done best at night, closing the windows or window before morning. A cellar where bees are kept should be pitch dark. If the wood is in one end of the cellar, and the bees in the other end, you had better partition off with boarding, carpeting, or any kind of screen that will shut off the light. If for some reason you can not put up a partition, darken all the windows in the cellar, then when you go down to split wood take along a lamp or open up a window for a few minutes while you split wood. You will find fuller particulars on this subject by referring to the subject of Cellar Wintering under the head of Wintering, in the back of the A B C book you have.—ED.]

MOISTURE ONE OF THE CAUSES OF WINTER TROUBLES; THE FOLLY OF SCANT FEEDING.

In my opinion it is not the cold blizzards nor the long cold spells, but the moisture dampening the colonies that caused the trouble in the winter. As my experience goes, I find that a colony of bees can stand almost any degree of heat or cold if they are kept dry. They must also have plenty of feed, and the quicker the bees get the feed inside of the hive, the better it is for the apiary and all concerned. When I have to feed I want the bees to take the feed just as fast as they can, or I do not want them to take it at all.

Just once in a while there is a bee-keeper that feeds his bees what he ought. The great trouble is, most of us do not feed our bees enough to do them any good. I have fed an apiary of 400 swarms 250 gallons before it showed one pound in the hives. Of course, some one will ask, "What did the bees do with that 250 gallons of feed that it did not show up in the hive?" Well, I do not know what they did with it. I leave that for Dr. Miller to answer. But one thing I do know is that, when I feed an apiary of 400 swarms 1000 gallons of feed, it begins to show increase in brood; and when I feed that same apiary 10,000 gallons that apiary is insured for the honey crop if it comes; and if it does not come, my bees are in good shape for winter.

Matanzas, Cuba. C. E. WOODWARD.

[You are just exactly right on this subject of dampness. The sooner bee-keepers get over the idea that an excess of moisture is not harmful when accompanied with cold, the better will be their profits.—ED.]

PACKING DOVETAILED HIVES FOR WINTER.

I find nothing in your journal about the preparation necessary for packing the Dovetailed hives—I mean for outdoor wintering. I pack in large cases. Do you put a quilt between the super and brood-chamber, leaving the super on? If so, what kind of quilt or cloth do you use? Do you then fill the super, which, of course, is destitute of all frames, with chaff or leaves?

Last winter I removed the supers, putting the covers right down next to the brood-chamber. I lost one colony out of eleven by so doing. Is there not danger of damp?

Corunna, Mich. E. W. HARDING.

[Particulars for preparing chaff hives for winter are given in our regular catalog. Instead of a cloth on top of the brood-nest, we now recommend a thin board cover, or what we call a "super cover." This consists of two or more boards $\frac{3}{16}$ thick, tongued and grooved together, and held from warping by a tin binding at each end. Over the top of this we put a large cushion, or, better still, a tray nearly as deep as the telescoping cover, and just large enough to slip inside. This tray has for a bottom a piece of burlap loosely nailed on. This makes a complete tray which is then filled with planer-shavings, chaff, or forest-leaves. When so filled it rests on top of the thin super-cover, and the water-table of the hive as well. The chaff-hive cover then sets down over the whole. We formerly used burlap or some other loose material between the brood-nest and the cushion or chaff tray on top; but on the whole we think we get better results with the sealed-board cover.—ED.]

HONEY-DEW UNFIT FOR BEES; A NEW KIND FROM ACORNS.

You no doubt remember I wrote you in regard to the trouble I was having with honey-dew from the buds. At that time you said honey-dew from the buds is generally good to winter bees on; but I found it was sure death to every colony that had it. At this date we have another kind of honey-dew. There is a little bud forms between the acorn and the shell; and after a time these little buds fill and the honey forms in the little cups or cavities left vacant. The bees work as hard on them in the morning as on basswood. This is something new to me, and I should like to hear from you through your journal.

I have extracted some of the honey, and find it about the same in color as white clover; but it has a sharper taste, not so rank as that from the buds. E. EVELAND.

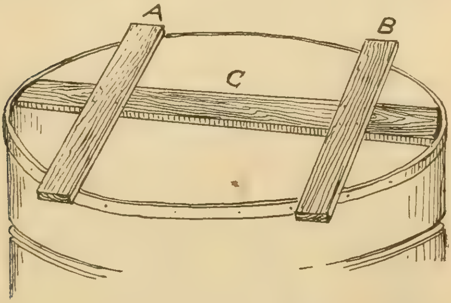
Barneveld, Wis., July 31.

[We have had reports of honey-dew from acorns; but, unlike the ordinary honey-dew, which is a secretion from bark lice or other insects, this seems to be a juicy exudation from the acorn or bud itself. The quality of this so-called honey is usually very poor. --ED.]

A SUBSTITUTE FOR THE CROSS-ARM OF A DADANT UNCAPPING-CAN.

This is a device to be used on the Dadant uncapping-can. The pieces A and B rest on top of the edges of the can, while C is cut to fit inside, which makes the whole very firm; 4×⅞ lumber is about right. The advantage of this device is, there is no time lost in locating the frame on the nail-point as with the regular one.

Another advantage is in uncapping weak, broken, or other combs that are capped under the top-bar. Such combs are generally best handled when turned on the top-bar, and uncapped by cutting up toward the bottom-bar. I never knew of any one yet, after getting used to this kind of arrangement, to want to use the original bar again.



Casanovia, Cuba. LESLIE BURR.

ICE WATER FOR REMOVING PROPOLIS.

I notice what E. R. Root and Dr. Miller say about greasing the fingers to remove propolis. The quickest thing I have tried to remove propolis is ice water. It hardens the propolis, and it cracks up and comes off without leaving any stain.

Camillus, N. Y. IRVING KINYON.

Ice water would, no doubt, harden the propolis in a way that would facilitate materially its removal. I never tried it, but I see no reason why it would not work. I very often rub my hands through the grass to remove the greater portion of it, then with a little dry earth or dust rub off a good bit more of the sticky stuff. What remains will not stick to the brood-frames or tools in working over the hives. The principal objection to your remedy is that ice water is not readily available in an ordinary bee-yard.—ED.]

HONEY VINEGAR, AND HOW TO MAKE IT.

[It may be well to state, in explanation, that Mr. Toepperwein sent us a sample of honey vinegar that was so fine we asked him to give his method to the readers of GLEANINGS. He replied as follows:]

This vinegar was from a lot of six barrels that I put up about a year ago. I used 3 lbs. of honey, valued at 6 cts. per lb., to make a gallon of vinegar, and there was a shrinkage of 15 per cent. I boiled the water (which was common hydrant water) and then, while stirring, added the honey, and boiled the mixture until it did not foam up any more refuse. The whole mixture was cooked together, then put into a barrel after it was cool, then set out in the sun, with an opening covered by a wire screen.

I kept one barrel, out of which I drew the liquid while it was fermenting, and kept adding it in the other barrels, so that it would constantly foam over and the barrels still be full. After it was through fermenting I drew it through a hose and then strained the vinegar, or, in other words, metholin, through a double cheese-cloth, not drawing quite all from the barrels. This, together with boiling out the impurities, makes it clear and clean. I did not keep a thermometer in the honey vinegar, but simply heated it as hot as fire would make it, and kept skimming it off until it would not foam any more. You will have to judge the length of time yourself to let it boil by the impurities that come out, as it must be boiled until nothing impure comes out.

UDO TOEPPERWEIN.

San Antonio, Texas, Sept. 6.

[You say that you used 3 lbs. of honey to make a gallon of vinegar, and that there was about 15 per cent of shrinkage. According to the method given in the A B C book, the honey may be added until the mixture is of such a density that a fesh egg will just float, leaving a spot above the liquid as big as a ten-cent piece.—ED.]

THE PLAN OF WINTERING A PLURALTY OF QUEENS PRACTICED IN ENGLAND.

I note in your issue of Aug. 15, page 871, a most interesting article upon wintering a plurality of queens. If more bee-keepers would follow friend Reiber's plan I am sure they would find it to their advantage. The extra queens are most useful just at the time when most wanted to take the place of those lost in winter. Many a good stock could be saved by being always prepared with a few extra queens. For four years now I have worked upon similar lines, making an ordinary ten-frame hive into a three-compartment hive by fitting two tight-fitting division-boards (not wire screens), one entrance being at the front and the other one at each side. Each division takes three of our frames. I have always been very successful with them.

In the autumn a good stock is divided up by placing the two division-boards in position. The brood and bees being also split up, two queens are introduced to the two compartments that are, of course, queenless, when all are fed up so as to be provided with plenty of sealed stores. A good cake of candy is then placed upon the top, and every thing made secure for winter. The one great point in wintering these small colonies is to be certain they have *plenty of stores.*

My bees always winter outside in single-walled hives, but I don't think our winters are so cold as yours are; however, I hope more will try this idea, and so always be prepared with sufficient spare queens to introduce to any hive that may have lost their queen in the winter, and also have one or two for a less fortunate friend. All that is required to be done when the queens are removed in spring is to take out the division-boards, and then you have a fine stock ready for any early honey (hawthorn, sycamore, or fruit, here).

The last season was a very fine one for us English bee-keepers. I hope it has been so for our American friends.

HERBERT POTTS.

Dutton, England, Aug. 29.

[The plan you describe is doubtless for outdoor wintering. It has been tried to some extent with varying success in this country. We expect to test it out on quite an extended scale in our cellar under the machine-shop. Indeed, we are almost compelled to, as we have a large number of choice queens which we desire to keep over till spring. We will, therefore, put these light nuclei, two or three, as the case may be, in one hive.—ED.]

GROCERS WANT FULL-WEIGHT CASES OF HONEY.

Just a word in regard to the article at the foot of page 1089, Oct. 15. More or less of the time for the last three years I have been on the road selling honey, and I feel that I know what the trade, in this section at least, desire.

First, let me say that by far the greater part of the best grade of our honey runs 24 lbs. to the case of 24 boxes. I maintain, also, that in the best grade each section should be so near like all the others that there would be no choice. It has always been the cry of the bee journals and the jobbers that comb honey should run a pound or two under weight. When I first went out, my heart rather misgave me, knowing that I must sell full-weight cases. What did I find to be the wish of the trade in this matter? Just this. Fully 75 per cent specified full weight; not over 5 per cent desired cases weighing 23 lbs., and only one merchant to whom I sold honey this year wished a case weighing less than 23 lbs. Any thing less than 22 lbs. must go as second grade, and goes slow at that.

You suggest that the grocer keep the case under the counter, and show only two or three boxes. By so doing you deprive him of his cheapest and best mode of advertising. I know from actual experience with my trade that the merchant who displays artistically a whole case or even two or three cases of honey in his window or on his counter will sell several times as much in proportion to the size of his trade as one who displays less. Why? Simply because the attention of the consumer is called to it more forcibly, and at a time when he is prepared to purchase. It is also true that every one likes to buy an article that he knows is being sold in large quantities. What better recommendation can there be for it? PHILLIP E. CRANE.

Middlebury, Vt., Oct. 24.

[It is true that, in some localities, full-weight cases or full-weight sections are called for; but in most of the Western markets, particularly those around Chicago, a section slightly under weight is in demand. You say you maintain that each section shall be so nearly like the others that there will be no choice. That is a good deal the doctrine I have been preaching; for when the sections are carefully graded they are very nearly of equal value, and can, therefore, be sold by the piece. There will be no need of keeping sections of this kind under the counter. The case might be set back a little, so that the grocer can pick up the first one he comes to, which would be the next one in order.—ED.]

WINTERING BEES BY PLACING HIVES BETWEEN BAGS OF STRAW.

I see so much in GLEANINGS about wintering bees that I will tell how I have been fixing them for wintering for the last six years or more. I put five and six on a bench with a jute sack filled with straw between each two shoved up together; then I drive stakes behind and in front a foot from the hives. I then fill the spaces with corn fodder to the top of the hives. I also set fodder up at each end, also putting some over the top; then a board roof with proper slope. I have never lost a colony yet by wintering in that way. This winter I am making a change, and am taking wire netting, such as is used for poultry-fencing. I cut it 3 feet wide, and length to suit, putting a heavy filling of straw between two pieces, then lacing them together with binding twine, and setting them on edge, front and rear of hives, with a bag of straw between the hives and at each end, and will use second-hand steel roofing over the top, with some packing of straw or fodder under the steel. The straw and wire netting will be something like a mattress, and can be taken and stored away in spring for another time, and it will not be so much trouble to clean up as the fodder.

My bees are all in double-walled hives, but not filled with chaff. W. S. WILLIAMS.

Julian, Pa., Oct. 26, 1905.

[Your plan of wintering is all right, but it involves a lot of work. If time is money, a straight out-and-out double-walled chaff hive or winter case would be cheaper. But where one is situated as many are on the farm, when they can not always employ their time profitably, he can put up his bees in the fashion described, very cheaply.—ED.]

TOWNSEND PLAN OF PRODUCING BOTH COMB AND EXTRACTED HONEY IN ONE SUPER NOT LIKED; HONEY FROM WHEAT STUBBLE.

I raise both the extracted and comb honey, and have tried the Townsend plan of producing both in one super, but do not like it as well as my old way. With the Townsend plan there is no way to hold the section together in the center, and the bees put in all the propolis they can, and that makes lots of work to clean them. My other way is as follows. It is not a new plan, but I think it a good one.

I have supers that use the Danzenbaker frames for extracting, and in apple bloom I put on these supers. When they are about full I raise up the extracting-super and put under a super with sections, and I have nice filled ones, and before the end of the honey-flow I put on extracting-supers again. In that way I have no unfinished sections, and I can keep swarming down to almost nothing. I leave on my supers until they are all capped over, so as to have a good grade of honey.

We get most of our honey from white clover, but this year it was a failure—lots of bloom but no honey. We have the willow-herb, which brings lots of fine white honey of good flavor. But the best honey, I think, we get comes from wheat-stubble. Right after the wheat is cut, the stubble fills up with honey. It is as sweet as honey in the stubble, and the bees just pile it in the sections. It is the finest honey I ever had or tasted. This may seem strange, but it is the truth. If it had not been for the wheat stubble our honey crop would have been a failure. There are only two kinds of wheat that produce this kind of honey. They are called Jones' Fife winter wheat and Gold Coin winter wheat. When we cut this wheat the horses' legs and the machinery get so sticky and full of honey that a person almost sticks to it as a fly does to tangle-foot.

Spangle, Wash. ADOLPH SUKSDORF.

REPORT OF AN ASTONISHINGLY GOOD CROP.

From time to time I have read in your paper, but not always with that intense interest that perhaps I should have had, the reports from various bee-keepers about their crops for 1905. I note that some reports are good, some fair, and others very bad—the goodness, badness, or fairness depending on the amount of honey and the price per pound.

I want to submit the report of my crop for 1905, which, so far as I have read, excels all others.

I have 29 colonies all in good condition, and nearly all in active work under direct observation. I have spent this season about half my time (in giving the bees the best care); I have harvested 9 sections of honey, a lot of odds and ends showing the work of the bees; 29 "tons" of h—happiness, and 325 stings.

I have learned much that I never knew before about these wonderful little creatures, and I close the season with the apiary stocked full of plans, and myself full of ambition to get more happiness and more stings next year, to say nothing of information. Yet there are old fogies who will tell you it doesn't "pay" to keep bees.

EDWARD F. BIGELOW.

Stamford, Conn., Oct., 1905.

[There are hundreds and hundreds of others who keep bees, not for the honey or money they get of them, but for the tons and tons of happiness that will be theirs. One old bee-keeper, Mr. Frank McNay, who used to manage several outyards in Wisconsin, and who kept bees strictly for the dollars and cents he could get out of them, recently wrote that, since he had got to California, and had gone into the fruit business, he just *had* to get a few bees, as he felt lost without them; and there are hundreds of others who have had the same experience. There is, in fact, no rural industry that brings us closer to nature than the keeping of bees.

I will say to our readers that Professor Bigelow is one of the most enthusiastic bee-keepers I ever met. He does not keep bees for honey that he may get out of them, but that he may delve down into one of the most interesting departments of nature study that the world affords. Our readers will remember him as being the professor who talked to the schoolteachers at the Home of the Honey-bees, which picture was given on page 914, Sept. 1.—ED.]

REPORT OF ALEXANDER PLAN OF CONTROLLING INCREASE.

GLEANINGS has been a great help to me. I started in the bee business last February with ten colonies of bees; and as I have to be away from home a great part of my time I did not know how I should manage during swarming time; so when I saw all the different ways in GLEANINGS for controlling swarming I decided that I would try the E. W. Alexander plan on page 425, and as my bees were getting ready to swarm I began changing them up as Mr. Alexander said, and it worked finely. I did not have a swarm come off at all after eleven days. When I took the top bodies off I always found from three to six ripe queen-cells, so I had no trouble about getting queens, and the colonies with the young queens made the most honey.

Florence, Ala. CHAS. MOELLER.

HEALTH NOTES

BY

A. I. ROOT

CHESTNUT-GROWING — THE IMPROVED VARIETIES, ETC.

I have told you how much we have enjoyed the fruit of our peach orchard this season, with new varieties ripening every day or two in succession, from July until the last of October. Well, you know there is quite a community of good people — yes, *very* good people — who declare that God intended us to live on fruits and nuts. I have tried the fruits pretty thoroughly; in fact, I lived on peaches and milk three times a day just on purpose to see if any bad result would follow, even if I used them to excess, as you might say. I am glad to report that they did not hurt me a bit; in fact, I never felt better in my life. So our cabin in the woods is all right for the fruit side, for I have mentioned before the raspberries and blackberries that seemed to bear continuously in the Grand Traverse region.

Of course, we have enough peanut butter on our table, and salted peanuts. But of all nuts that God ever gave to his children, the best is, in my opinion, the chestnut. But I should want them baked, roasted, or boiled. My favorite way is to roast them on the stove; and since I have succeeded so well in raising peaches I have turned my attention to growing nuts — especially chestnuts. The catalogs tell us that the new and improved large-sized nuts are grown on trees no larger than peach-trees, and they are so prolific that the trees have borne while still in nursery rows. One of my neighbors up in Michigan says he saw a little chestnut grove where the trees were bearing loads of huge nuts before they were as large as bearing peach-trees usually are. I have planted sample trees of all the new kinds of Spanish and Japanese chestnuts. Some of them have been growing two years, and may, perhaps, bear next year. Now, can the readers of GLEANINGS tell me what they have or what they have seen in the way of the new chestnut that bears at such an early age? If I am correct, the large-sized nuts are not as sweet as the native American chestnut; but I have found samples of the nuts in our large cities; and when they are roasted I find them very good indeed, if not quite equal to the native. As there has been quite a little stir about these large nuts for several years past, somebody ought to have some bearing trees by this time. By the way, what is our experiment station doing in the way of testing nut-bearing trees? I have seen somewhere that in some foreign countries the large chestnuts are a staple article of food, and not a very expensive food either.

Perhaps I should add that the greatest obstacle in the way of growing the native American chestnut is that it takes so many years for them to become of bearing size. A neighbor of mine in Michigan has a row of the common kind by the side of his peach-orchard. There are fifteen or twenty trees there now, each about a foot in diameter — monstrous forest trees. They were planted about twenty years ago. But, although they grow rapidly in that fertile soil, they have never borne very many nuts. I presume they can be grafted with the improved early varieties so as to give an abundance of nuts in a very few years.

At present the grafted trees are rather expensive. While small trees can be bought for 30 or 40 cents, those of a bearing age cost from 75 cents to $1.00. What has been done up to the present day in the way of growing chestnuts in America?

Since the above was dictated I have run across the following from a periodical called *Vital Culture:*

> Nuts of all kinds are exceedingly nutritious, and can be digested with ease by almost any one, provided they are eaten either alone or in conjunction with other natural foods. Who can see a squirrel frisk about without wishing that his body were as flexible and as agile? The squirrel, as you remember, lives almost entirely on nuts.

You see when my chestnuts get to bearing up there at the cabin in the woods, I shall have plenty of frisky neighbors in the shape of real squirrels; but I can hardly expect, at my age, to get so "flexible" and "agile" that I can climb trees and spring from one to another as they do almost daily all around our home.

Perhaps I might add that we are now purchasing beautiful new chestnuts in our market for 20 cents a quart; and Mrs. Root puts a dozen or two on the stove when she is cooking, and we have a chestnut dessert after each meal. I also notice by the Philadelphia *Farm Journal*, for November, that the editor has visited J. T. Lovett's chestnut-farm near Bristol, Pa., where he has 30 acres of the improved chestnuts in bearing. These trees are ten or twelve years old from the graft, and are bearing from a bushel to a bushel and a half to a tree.

GOD'S MEDICINES.

My attention has been recently and forcibly called to another of God's remedies, and I think it will go along very well with pure air, outdoor exercise, good water to drink, etc. It is the use of lemons, the acid that God prepared especially for his children, and it is entirely nature's work. There is a peculiar kind of indigestion that makes one crave something sour. This is especially the case in the spring of the year. Some people eat pickles and similar manufactured acids; but I believe that most of us have found out they are, as a rule, very unwholesome and indigestible. The value of lemons seems to be so well recognized that you can buy them all over the world, in almost any corner grocery, at almost any season of the year. The prices, too, are within the reach of everybody. With a little care, lemons will keep not only for weeks but for months, and they are always wholesome. When I have a peculiarly bad taste in my mouth I instinctively feel a craving for lemons. The papers have been telling us recently that a little lemon juice in the water we drink will destroy the harmful bacteria. A competent medical authority replies that, while this is not altogether true, it is partly true. I know that, when I can get hold of a lemon and have an opportunity to sit down with a cup of water in one hand and the lemon in the other, I can cure the bad taste in my mouth and the unpleasant feelings in the digestive organs, and feel refreshed and well in just a few minutes. The lemon juice may be squeezed into the water before drinking it, or you can suck the juice out from one end of the lemon and then take a swallow of water. I like the latter plan better. The pure lemon juice cleanses my mouth and my teeth better than the diluted juice; and when it gets to be unpleasantly sour, a little water taken into the mouth seems to be peculiarly refreshing and pleasant. Sometimes I prefer hot water, and under some circumstances it seems to be a better remedy than cold water — especially water that is *very* cold.

I believe lots of suffering might be relieved, and many doctors' bills saved, by using lemons in this way. It is a thousand times better than stimulating drinks or stimulants of any kind. It is God's own medicine put up in neat little bottles which are his own handiwork; and I believe he intended it for us just as he intended the refreshing breezes, the genial sunshine, and the pure spring water that gushes forth from a thousand hills.

OUR HOMES,

BY A. I. ROOT.

Righteousness exalteth a nation, but sin is a reproach to any people.—PROV. 14 : 34.

"A BARREL OF WHISKY OR A BUSHEL OF BIBLES."

Nearly a year ago I said in one of my Home papers that one of the speakers at the Anti-saloon League meeting in Columbus threw a banner across the stage, with the heading, "A barrel of whisky or a bushel of Bibles." At one of the liquor-league conventions a speaker said we fanatics might bring our Bibles, as big a stack as we liked, and that he would beat us all out of sight with a *barrel of whisky*. Now, it has looked at times during the past year as if the barrel of whisky *were* going to prevail against the Anti-saloon League, the churches *en masse*, and over every power that good men and women could bring to bear. Boss Cox, of Cincinnati, the boss and leader of Ohio politics, not only visits beer-gardens almost every evening, but he can drink thirty or forty glasses of beer in one evening. The statement has been published broadcast, and none of Cox's friends have contradicted it. I said, toward a year ago, it was not *possible* such a man could be permitted to say who should be elected to the prominent offices of our State, including that of Governor; and yet good people said Boss Cox had every thing so completely in his power that we could not help ourselves. He declared Herrick should be our Governor for another term, and good Christian people said it was better to let Boss Cox rule than to "disrupt" the Republican party.

The readers of GLEANINGS know how I have plead in these pages for a revolt, no matter what party it "disrupted." Only one person in this world knows how much I have *prayed* over the matter. God has not only heard, but *answered* the prayers of myself and of the Christian people of the land. As I write, many are perplexed and astonished, and some are indignant. But our fair State of Ohio has broken loose from her bondage. The people have, by their votes, declared we want a man for Governor who will *enforce* the laws, and not one who will suppress them in order to accommodate the liquor-men.

Judge Webber, in a political speech here just before election, produced a printed circular emanating from Joe Miller, of Cincinnati. This circular was a frantic exhortation to saloon-keepers and every one connected with the liquor-trade to work untiringly day and night for Herrick; for if Pattison were elected every saloon in this State would be shut up tight on Sunday. "Joe" closed with a caution to his friends about letting that circular get into the hands of the fanatics. Judge Webber said, with a comic smile, "We will take *great pains* not to let anybody see it." I wondered at the time if our people realized that the saloon element had by this circular candidly owned up that they did not *like law*, and that they proposed to break our laws, and that they must have have a Governor who would make it as *easy* for all law-breakers as he possibly could. We read, "The wrath of man shall praise thee." How wonderfully this little text has been verified! These law-breakers, in their stupid and dense ignorance, could not see they were giving Mr. Pattison one of the highest compliments that could *possibly* be paid him. They were unconsciously, it seems, putting into our hands a tremendous weapon—a weapon with which to hew themselves to pieces. May God be praised that the weapon was seized by an indignant public, and *has been* used to advantage.

I hope I may be excused if I quote a text *to the Republican party*, especially as I have been a Republican all my life, and expect to be a Republican still, but an independent voter. The text as applied to the Republican party is this:

Now, no chastening for the present seemeth to be joyous, but grievous; nevertheless, afterward it yieldeth the peaceable fruits of righteousness to them which are exercised thereby.—HEB. 12 : 11.

HIGH PRESSURE GARDENING

BY A. I. ROOT

ADULTERATION OF CLOVER AND OTHER SEEDS.

One thing that has pleased me in gardening and growing field crops in Northern Michigan is the freedom from noxious weeds there compared with our gardens and farms here in Ohio. As an illustration: We have miles and miles of fields covered with ragweed as thickly as it can stand, all over Ohio. It comes in after the grains are harvested. Many people think the pollen from these acres and acres of ragweed is the cause of hay fever. In Northern Michigan no ragweed could be found five years ago; but now it is appearing in different places. There are comparatively no dandelions there; and quite a number of our common weeds that are pests were unknown, or at least I did not find any of them until *I myself* introduced them with plants shipped from Ohio. I did not think much about it at first; but these weeds caught on the new soil, and some of them went to seed, and now I have thrifty patches of several weeds I do not find anywhere except where I started them. Our neighbor Hilbert bought some clover seed that seeded his orchard pretty thoroughly with *dock;* and others around there showed me ragweed that has come up recently, which, as they supposed, must have been in clover seed they purchased. Quite a lot of other noxious weeds are to be found just appearing here and there in places, where it must have come through clover seed purchased.

I have just received a leaflet from the Department of Agriculture in regard to the adulteration of red-clover seed. A lot of samples were purchased in the open market, and they give a list of names of different seedsmen, perhaps twenty in all, who put up the seeds and put them on the market. One of the samples contained as much as *45 per cent* of spurious seeds. In this case the 45 per cent was burr clover and yellow trefoil. Other samples contained all the way from one per cent up. The sample from Gregory, of Marblehead, contained only 3 per cent of other seeds. One other sample, from W. Grossman, of Petersburg, Va., contained only 1¼ per cent. Quite a number of the samples contained from 10 to 20 and even 30 per cent.

Now, this is a terrible state of affairs. It ought not to cost *very much* to have red-clover seed so thoroughly cleaned that it will not contain more than three or four per cent of noxious weeds; and I do not know but it would pay to insist on having clover seed with less than one per cent of adulterants or noxious weeds. If one owns a farm which he expects to hand down to his children, it certainly would pay big to take every precaution to keep out noxious weeds.

GETTING RID OF THE GRASS.

How would you prepare blue-grass sod for a garden?
Soldier, Iowa, Oct. 9. R. A. WOOD.

Friend W., I do not know that I have had any experience with blue-grass sod; but I have had considerable experience with June-grass sod; and I have wondered why so many people seem to be afraid of it or object to it. In my potato-field in Northern Michigan a part of it was originally covered with a very heavy growth of June grass—so heavy, in fact, that it was hard work for a big team to get it turned over; but I was on hand, and by taking special pains we got all the grass out of sight. It was well harrowed, and potatoes planted. Of course, the grass started again, and began to grow up from the roots. But we kept it cultivated and chopped off with hoes, every bit of green as fast as it appeared, and it finally gave up trying to grow, and we had the best potatoes there of any place in the field. Since then I have seen potatoes grown by my neighbors where the grass was permitted to grow, and it almost seemed to choke out and obscure the tops of the potatoes. I believe they all succeeded in getting a good crop, however; but it is terribly hard work to dig the tubers, no matter how you manage it. I helped a neighbor recently a little while in such a potato-patch. I greatly enjoyed turning out the magnificent Early Rose potatoes; but before I had dug many bushels I became so tired I had to lie down in the grass and take a nap. I believe that, before the next season, they generally succeed in pulverizing the sods, so an excellent crop is assured of almost any kind. One of my nearest neighbors plowed under his June-grass sod early in the fall; then he harrowed the ground every few days, killing the grass and every weed that started. Last June I congratulated him on having the finest and cleanest-looking field of potatoes I had ever seen him grow. I suggested that he must have cultivated them a great many times, and had done a good job of hoeing one or more times. I was surprised to learn he had not cultivated them as *much* as usual, and had done no hoeing at all. The explanation was, the plowing and repeated working of the ground with the harrow the fall before. He not only killed the grass, but he made all the weeds germinate possible, then harrowed them to pieces, gave another set of weeds a start, harrowed them, and so on. This fall working of the ground is a splendid way to prepare a field for strawberries to be set the next spring, as you will notice by the strawberry-book.

LOCATING IN FLORIDA FOR QUEEN-REARING, ETC.

In our last issue I mentioned Miami. Since then I have good reasons to think that somewhere near Fort Myers, on the west coast, would be better for our business. But I shall probably visit several places before deciding definitely on a locality. Meanwhile I shall be glad to get suggestions. I am especially anxious to know if anybody has succeeded in raising queens all through the winter months. It is a difficult matter to preserve drones. In my travels through Florida I have seen some queen-rearing in the winter time, but not away down below the frost-line. I think one or two have advertised queens during the winter; but, so far as I recall, none of these advertisers made it much of a success. I suppose there will be no very great demand before March and April unless it is to supply orders from Cuba and the southern parts of the United States. What I wish to get at especially is, is there anybody in the United States who undertakes to ship queens promptly, especially *young* queens, every day or any day in the year? I am sure there ought to be some such person or establishment; and as I do not expect to monopolize the business by any means, I should like to see somebody else, who is favorably located, turn in and help. I shall probably be here in Medina until the fore part or middle of December.

"THE YOUNG LADY AT BINGHAM."

I shall have to explain to our readers that the little church up in Northern Michigan I have talked so much about is called the Bingham church, after the little town close by. A few days ago I found the following in the *Rural New-Yorker :*

> There was a young lady at Bingham
> Who knew many songs and could sing 'em;
> But she couldn't mend hose,
> And she wouldn't wash clothes,
> Or help her old mother to wring 'em.

Of course, I clipped it out and sent it to the "young ladies in Bingham," with my compliments. I took pains to assure them, however, that I felt very certain that it did not fit any of their number, especially those who go to church and Sunday-school, for I know full well *they* not only help their mothers to wash clothes and do housework, but the greater part of them can dig potatoes, pick beans, strawberries, or do almost any thing else. And, by the way, it makes me homesick almost every time I think of that Bingham church and Sunday-school. I am not only homesick for a sight of the "young ladies of Bingham," but I want to see the old ladies and middle-aged ones too; and I want to see the boys and the middle-aged men, and the old men also. I am almost counting the days when I can be with that little flock once more, and I am praying God that the revival spirit that filled their hearts last fall may be as bright and as full of enthusiasm when April comes as it was when I left the dear friends in October.

BOSSISM AND LIQUOR DOMINATION.

In our last issue I gave a plea from Congressman A. R. Webber, and I now wish to quote something more from him, taken from the Medina *Gazette*, as follows:

TO THE REPUBLICANS OF OHIO.

The voters in our great party have determined by their ballots the issues of this campaign — shall bossism, and especially of the George B. Cox type, together with his allies, the liquor interests of the State, longer dominate in determining our party nominations and policies? The verdict of the people is against such domination. Geo. B. Cox now says in public print he has retired from politics. Don't you believe it. He has said this before. He will be on hand next time at the State convention with his delegates to dictate, if possible, through his allies, the liquor interests, who shall be nominated and what shall go in our platform. The only way for us to defeat this is to listen to the demands of the Republican voters and see to it in every ward and township in Ohio that only delegates shall go to *county* conventions (where our State-convention delegates are chosen), as will support only such delegates to the *State* convention as will pledge themselves to demand that a plank shall go into the Republican State platform denouncing such bossism and liquor domination in our party affairs. This is the only way to break up and demolish effectively the present Boss Cox machine. And our county conventions thus selecting State delegates should be called on to pass resolutions of instruction to the State delegates in keeping with the above. I ask Republicans who read this to cut it out for preservation, and write me as soon as possible whether you are in favor of this kind of move. I certainly favor it, and believe it is the only safe way to keep out of the hands of the enemies we have been fighting in this campaign. Write me at Elyria, O. Truly yours for clean politics,

A. R. WEBBER.

As this manner of denouncing bossism and liquor domination is one in which Republicans and Democrats, and the Prohibition and all other political parties can join in, I would ask our readers to present the above to the editors of their respective county papers for publication—that is, if they have not already given place to something that covers the same ground. It is not only getting to be a "wet-and-dry" issue, but it is really a *life-and-death* issue—that is, life or death for our American republic.

NAVIGATING THE AIR.

I wish to extend my hearty thanks to the readers of GLEANINGS who have, during the past year, taken pains to send me newspaper clippings in regard to dirigible balloons, etc.; and I should be glad to have any of our readers mail me whatever they find in the papers in regard to any experiments in navigating the air — more especially those that will work without the aid of a balloon. As I take the *Scientific American* and the magazines specially devoted to mechanics and science, I refer particularly to newspaper notices from different localities where experiments in aeration are being made. I do not care so much for sensational stories of what somebody is *going* to do; but I want reports of what has actually *been* done up to date. *At present I am not at liberty to give a report of the wonderful progress made by the Wright Brothers in the past few months.*

ORRIS-ROOT CULTURE.

The Department of Agriculture at Washington has issued a warning against being taken in by advertisements in the papers, from those who have orris roots to sell. They represent the root as being worth 40 cts. per lb., whereas the average price is only from 3 to 10 cts. These advertising fellows also say the United States makes an annual demand of $2,000,000 worth, while the real truth is, there is a demand for only about $20,000 worth. It makes one think of the ginseng business, and these other chaps who are so anxious to do good by getting everybody to raising mushrooms in old cellars. While there is a limited demand for orris root, and I believe it could be grown profitably by those favorably situated, it is certainly important that whoever goes into it should not be misled by such astounding extravagances.

"LOOK OUT FOR HIGHWAYMEN."

As I have been a reader of your Home papers for a number of years, and know your attitude on certain things, I feel like asking you to reach as many homes as you can, warning parents to look out for the "highwaymen" who are passing out to schoolboys such pamphlets as I inclose herewith. I have a boy thirteen years of age. He, with several others from here, attend school at Niagara Falls. While coming home in the car a day or two ago a man, well dressed, opened his grip and distributed these pamphlets among these young boys. M. GOODRICH.

La Salle, N. Y., Oct. 11.

The book mentioned above is an advertisement for a certain kind of cigarettes. It contains pictures of prominent men, politicians, theatrical players, etc.; and each of these prominent men tells how much he enjoys this particular brand of cigarette. The book is published with the end in view of exciting the curiosity of the boys, and inducing them to think there is something wonderfully nice about the cigarette. Once more: Yesterday's daily had an account of a school somewhere in the State of New York that had to be dismissed in the middle of the day. Thirty or forty boys were so sick from the effects of tobacco they had to be sent home and break up school. How did those boys happen to be in that predicament all at the same time? A well dressed stranger on the streets of the town distributed among these schoolboys samples of a particular brand of tobacco. They went away somewhere by themselves with the samples and proceeded to test the tobacco to see what it was like, with the above result. A highwayman who would have held up a lot of boys and robbed them of what money they had, or even their good clothing, would have been hunted out by the police, no matter what the cost; but the highwayman who deliberately plans to steal both body and soul is allowed to go unpunished.

SOME OF LUTHER BURBANK'S TRIALS.

We find the following clipping from some newspaper; but as we do not know the name we can not give credit:

Once I had a strawberry-plant that had come as near perfection as I hoped for. Out of several thousand plants it was the perfect one I had been breeding for. I put a fence of little stakes around it, hedging it in from the others, and with much care explained to an Englishman I had working for me that he was to leave that one untouched and pull up the others around it. When I came to look at what he had done I found he had pulled up my one perfect plant—it was lying withering in the sun—and the rest were all growing.

The above illustrates so vividly some of my own experiences with hired help that I have given place to it. I have sometimes thought these people were *willfully* stupid, and destroyed purposely that which we value the most, but perhaps this is not so. But it is sad to contemplate the number of people in our cities who can not get a job when there are hundreds and thousands of employers who are ransacking the country for competent help. Is it because our people are not properly educated in youth, or what *is* the trouble? Some time ago I had one man who was almost *sure* to do things I particularly cautioned him not to do.

FINDING WATER WITH A HAZEL ROD OR A PEACH-TREE SPROUT.

As there are still people who insist that there is sense and science in finding water by the above means, I give place to the following, which came from one of the agricultural journals; but as I can not find which one, I can not give credit:

Our correspondent is misinformed, and can easily convince himself that the hazel-twig business is absolutely nothing but delusion by simply leading a water-witch, securely blindfolded, several times over the same tract by circuitous routes, and noting, without the knowledge of the magician, every spot where the wand turns. If there were any thing in the method the rod would, of course, always indicate the same spots. Nothing of that kind ever occurs with the witch kept securely in the dark and turned round often enough to lose his bearing completely. Either the rod will not work at all or its indications will be uncertain and self-contradictory.

Somebody says:

Man has made the flying-machine, wireless telegraph, and numerous other inventions, but has yet to imitate our little mathematician the bee in making comb honey.

Special Notices by A. I. Root.

McCLURE'S MAGAZINE.

At our last church conference here, in an address by Washington Gladden he spoke of the great reforms that had been recently started in the financial and political world, and he remarked that one would naturally expect our churches and religious periodicals would be among the first if not the very first to start such a great movement for honesty and truth. But we must, he said, acknowledge to our shame that it is not so. The great war was first opened by our magazines—our recent ten-cent magazines. Mr. Gladden did not say so, but *I* say that McClure's was one of the *first* to inaugurate a reform. Single numbers of that magazine often contain articles worth a whole year's subscription. It called attention a while ago in a most valuable article to the cause and cure of the great white plague, consumption. Other articles on sanitation, medicine, anti-toxin, etc,, have been equally valuable. Last, but not least, McClure's Magazine will not accept whisky or beer advertisements, and not even a patent-medicine advertisement of any sort. Surely we can afford to give such a home magazine encouragement. You will notice by the advertisement on page 1205 of this issue that McClure's Magazine can be had three months free by just asking for it. Now, I should not be honest if I did not, while mentioning the *good* things in this periodical, also add that it is devoutly to be wished such a home magazine would discontinue the use of so many profane words in stories, and also recognize that drinking whisky and beer, smoking cigarettes, etc., are not just the things we might expect from the hero of a tale—that is, an *up-to-date* story.

MAGAZINE COMBINATIONS

Subscriptions may be sent to one or different addresses. We make a specialty of quoting prices on your own combinations. We will meet or beat the price of any agency or publisher. FREE: Send us any three clubs at advertised prices and we will give you any magazine of Class A free. Catalog Free. Agents wanted.

CLASS 1

Agricultural Epitomist (three years)	50
American Farmer	50
Beauty and Health	50
Boys and Girls	50
Book-keepers' Bulletin	50
Cooking Club	50
Church Woman's Magazine	1 00
Farm News	50
Farmers' Institute Bulletin	10
Farm and Fireside	50
Farm and Home	50
Farm Magazine	50
Fruit Grower (until Jan. 1)	50
Green's Fruit Grower	50
Housekeeper	60
Home Magazine	35
Ladies' World	50
McCall's and pattern	50
Poultry Success	50
Western Review	50
World's Events	1 00
Woman's Work	1 00
The Woman's Journal	50

CLASS A

American Boy	1 00
American Thresherman (after Jan. 1)	1 00
American Inventor	1 00
American Education	1 00
American Nut Journal	1 00
American Industries	1 00
American Dressmaker	1 00
At Home (Kentuckian)	1 00
Cosmopolitan	1 00
* Commoner	1 00
Church Economist	1 00
Dixieland	1 00
Farm Journal (five years)	75
Farm, Field, and Fireside	1 00
Four Track News	1 00
Fruit Grower (after Jan. 1)	1 00
Gleanings in Bee Culture	1 00
* Good Housekeeping	1 00
Harper's Bazar	1 00
Kindergarten Review	1 00
Magazine of Mysteries	1 00
Madame	1 00
Merchants' Guide (new)	2 00
National Daily Review (the woman's daily)	1 00
Naturopath and Herald of Health	1 00
New York Tribune-Farmer	1 00
New Thought	1 00
Ohio Teacher	75
Pearson's	1 00
Pictorial Review with pattern	1 00
Pilgrim	1 00
Physical Culture	1 00
Railway Critic	1 00
Silver Cross	1 00
Success	1 00
Talent	1 00
Town and Country Journal	1 00
* Woman's Home Companion	1 00
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* Add ten cents to club for this magazine.

CLASS B

Appleton's Booklovers	3 00
Current Literature	3 00
Outing	3 00
Burr McIntosh	3 00
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Journal of Education	2 50
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Reader Magazine	3 00
Review of Reviews	3 00

GLEANINGS IN BEE CULTURE—

With any one of Class 1	1 25
" two " 1	1 50
" three " 1	1 75
" one " A	1 50
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" American Magazine (Leslie's) 14 months, commencing with November; Suburban Life, and Pearson (Harper's Bazar or World To-day in place of Pearson.)	2 50
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Our References: F. and M. Bank, Bath, New York. Address

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Soon as I get the coupon—below—signed by you, I will start sending the magazine.

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ONLY SIX WEEKS LEFT

of the First GLEANINGS' Subscription Contest; but these weeks are the best of the year. Subscriptions are easy to get NOW, for everybody is renewing or subscribing. This contest is for our readers. It is within the reach of any one of them to win a prize. Just a little work among your friends; just a few subscribers, and you stand an excellent chance of one of our twenty-five prizes. Sign your name in the blank below and we will mail you sample copies promptly; but don't delay, for time is limited.

25 PRIZES

1st Prize - - - -	$10.00 Red-clover Queen.
2d Prize - - - - -	$7.50 Red-clover Queen.
3d Prize - - -	$5.00 Red-clover Queen.
4th Prize - - - -	$3.00 Red-clover Queen.
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CONDITIONS

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between September 15 and December 31, 1905.

SECOND.—To be eligible to any of the first five prizes, contestant must have at least five yearly subscriptions, or equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—Contest closes December 31, and announcement of winners will be made in January 15th GLEANINGS.

FIFTH.—That subscriptions can be sent in any time, but must be plainly marked "For Subscription Contest."

SIXTH.—GLEANINGS reserves the right to reject an application when it would interfere with an agent already appointed in any one county.

SEVENTH.—That advertising matter sent is to be carefully distributed to best advantage.

CUT HERE CUT HERE

Gleanings in Bee Culture

Subscription Contest Department

Date.......................................

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name...

Co...................................P. O...................................

I can use........sample copies of Gleanings. *State....................*

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WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—To buy colonies of bees. State price and condition.
F. H. FARMER,
182 Friend St., Boston, Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED.—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—To exchange a Pilling's caponizing-set (never used) for bee-books or any thing apiarian. No reasonable offer refused.
GRANT STANLEY, Nisbet, Pa.

WANTED.—Hickory, butter, and black walnuts (2 or 3 bu. of each), also some pecans, for cash or amber extracted honey. F. W. LESSER, Syracuse, N. Y.

WANTED.—California bee-keepers to please quote us a price on a carload of extracted honey at once.
SUPERIOr HONEY CO., Ogden, Utah.

WANTED.—A few copies of GLEANINGS for Dec. 15, 1885. Parties sending good clean copies of this issue may have their subscription advanced two months, or we will send ten cents in stamps. Not more than 25 copies can be used.
THE A. I. ROOT CO., Medina, O.

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WANTED.—Half a dozen bee-men for Cuba; men of ability and practice, men that *know* the honey business from A to Z. No others need apply.
W. W. SOMERFORD, Caimito, Cuba.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

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FOR SALE.—White Leghorn and White Rock cockerels; choice birds at $1.00 each.
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FOR SALE.—My apiaries of 300 colonies near Macon, Ga., the third healthiest city in the U. S., a ready market for output at a fancy price. Prefer selling a half-interest to a good practical bee-man to take charge. If you mean business, address for particulars
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FOR SALE.—100 acres irrigation farm, artesian well, 2000 gallons a minute; two-acre reservoir; houses, orchard, apiary, three tenant renters; in heart of Southwestern Texas. Write for particulars.
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FOR SALE.—Two Von Culin incubators and one brooder; also five buff Wyandotte hens and one cock bird cheap. A. H. KANAGY, Milroy, Pa.

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1-LB. SIZE, 3½x5½.			
100	$ .65	1000	$5.50
500	3.00	5000 @	5.25
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100	$ .80	100	$ 1.20
500	3.75	500	5.50
1000	7.00	1000	10.50
5000 @	6.60	5000 @	10.00
3½-lb. SIZE, 6x9½.		10-lb. SIZE, 10x10½.	
100	$1.00	100	$ 1.50
500	4.75	500	7.00
1000	8 75	1000	13.50
5000 @	8.25	5000 @	13 00

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Lots of 100	30 cts.
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Lots of 500	75 cts.
Lots of 1000	$1.00.

For each additional 1000, add 50 cents. Each change of name and address counts as a separate order. For instance, 1000 bags printed with four different names and addresses, 2 0 of each, would be $2.00; with ten different names, $3.00, etc. As the bags must be printed before they are made up and coated, we can not change the label except in lots of 10 000 or over.

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NEW WAREHOUSE,
PROMPT SHIPMENT,
ROOT'S GOODS,
LOW FREIGHT.

Everything for the Bee-keeper,
AT
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We are prepared to furnish promptly a full line of supplies, choice new stock just from the factory. .˙ .˙ .˙

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We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog free. Correspondence solicited.

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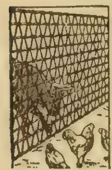

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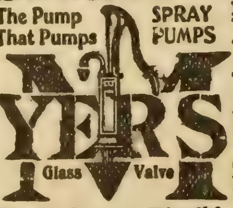

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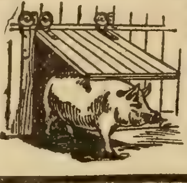

with steel roller bearings, easy to push and to pull, cannot be thrown off the track—hence its name—"Stayon." Write for descriptive circular and prices. Exclusive agency given to right party who will buy in quantity.
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For ripping, cross-cutting, mitering, grooving, boring, scroll-sawing, edge moulding, mortising; for working wood in any manner Send for catalog *A*.
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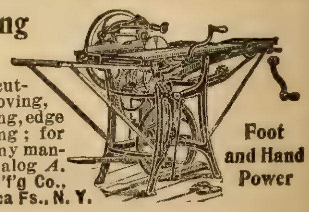

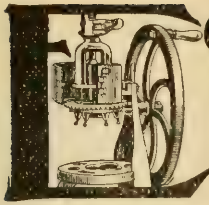

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Makes bone cutting simple, easy and rapid. No money in advance. Cuts all bone and adhering gristle. Wastes nothing. Cat'lg free.

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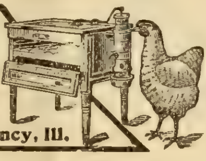

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GREEN BONE and VEGETABLE CUTTER will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

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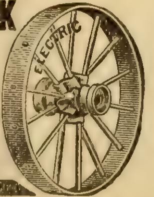

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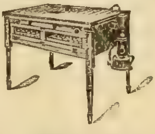

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make sure and easy work. Sold at positively the lowest prices. We let you **prove** their superiority. Write today for free book.

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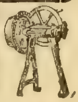

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will double your egg yield. Thousands of poultry raisers say so. It costs less, turns easier, cuts faster and lasts longer than any other. Price $5.00 up. **Sold on 15 Days' Free Trial.** Send for book and special proposition.

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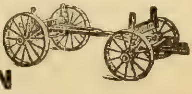

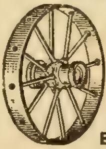

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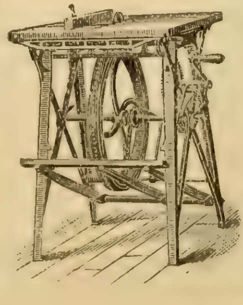

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This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc. . . . .

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Send for illustrated catalog and prices. Address

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Original
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Never Go Out
And last from 5 to 21 years

Tin 4-in. Smoke Engine 3½-inch 3-inch 2½-inch 2-inch Wonder
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Your smoker has been in daily use for months in a friend's apiary. He is enthusiastic in its praise, and, after seeing how greatly it facilitates the handling of bees, I heartily endorse all he says of it. L. L. LANGSTROTH.

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HONEY - JARS

No. 25 honey-jar, porcelain cover, metal screw-cap, absolutely tight, holding one pound of honey net, in shipping-cases, one gross each.
1-gross lots ....$4.50 per gross
5 " " ....$4.00 "

Also in Strong

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of two dozen each, heavy corrugated partitions, sides, top, and bottom, a perfect protection. . .
1-case lots ....$1.00 per case
5 " .... .95 "
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Eight-ounce Tumblers

Tin caps, three dozen in re-shipping case
5-case lots.........$ .85 per case
10 " .... .80 "
20 " .... .75 "

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82-84 Murray St., New York

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NATIONAL BEE-KEEPERS' CONVENTION
AT CHICAGO, DEC., 19, 20, 21
COME AND INSPECT

LEWIS' BEEWARE

AND MAKE YOUR HEADQUARTERS AT

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Catalog and prices on honey on application. If you want good goods at factory prices and prompt shipment, send your orders, or call on us.

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We allow early-order discounts.
64-page catalog free.

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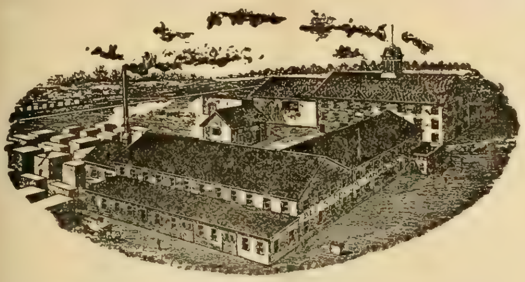
Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

12-ounce round jars, NICKEL CAPS, $3.75 per gross.
No. 25 jar, nickel or porcelain cap, $4.50 per gross.
1-pound square jars, with corks, $5.00 per gross.
Catalog free.

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.



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Now is the time to prepare for next season **If you want to save money** on Foundation, working Wax for cash, and on a full line of Supplies. Write for prices, discounts, and samples of our Superior Foundation.

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We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

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BEST ⊲ GOODS
IN THE WORLD

Best bee-hives, sections, comb foundation, and every thing the bee-keeper needs. Now is the time to buy for next year's use. Lewis' goods at factory prices. Catalog free. ::: ::: ::: ::: :::

CASH ORDERS AT CATALOG PRICES!
on such goods as mentioned in special list. Before November, 9 per cent; before December, 8 per cent; before January, 7 per cent; before February, 6 per cent; before March, 5 per cent; before April, 3 per cent. Ask for special list, free. ::: ::: ::: :::

PACKAGES FOR MARKETING HONEY!
such as shipping-cases with glass front, tin cans, buckets, glass jars with patent spring sealers and glass stoppers, regular glass fruit-jars, etc. Sample mailing-blocks for mailing samples of extracted honey. Special prices on glass honey-jars and tin buckets. ::: :::

NEW CROP OF EXTRACTED HONEY!
If you can't supply the demand in your locality, write to us at once and tell us how much you can use, and get our price by return mail. We have an abundance of the finest honey in the world; 10 cts. for sample by mail and the 10 cts. returned with your first order. :::

PAINTS FOR HOUSES, BARNS, ROOFS!
We quote low prices on all grades of paints, and especially on paint absolutely pure. Let us quote on paint for your house. ::: ::: ::: ::: :::

Best of service given all orders. Low freight rates. Write us to-day and tell what you want.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

"ESTABLISHED NEARLY TWENTY-FIVE YEARS"

LOWEST PRICES
BIG DISCOUNT - EARLY ORDERS

On cash orders before November 1....9 per cent
" " December 1....8 per cent
" " January 1......7 per cent
" " February 1 ...6 per cent
" " March 1 ....4 per cent
" " April 1 ....2 per cent

BEE-SUPPLIES
OF ALL KINDS

We have published *The American Bee-keeper* for 15 years (monthly, 50c a year); the largest and best illustrated magazine of its kind for the price published; edited by two of the most experienced bee-keepers in America. Sample copy free. Our large illustrated price list of supplies free on application. Address ::: ::: ::: :::

The W. T. Falconer Mfg. Co.
Jamestown, New York

PAGE & LYON
NEW LONDON, WISCONSIN

Manufacturers of and Dealers in

BEE-KEEPERS'
SUPPLIES

Eight per cent Discount during November on all Orders Accompanied by Cash

Send for Our FREE
New Illustrated Catalog and Price List

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

November 1......	9 per cent	February 1.......	6 per cent
December 1......	8 per cent	March 1	4 per cent
January 1........	7 per cent	April 1	2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

SPECIAL

RENEWAL

OFFERS

How to Get Gleanings or A B C of Bee Culture Free

During the next few months the bulk of GLEANINGS subscriptions will expire. Look at the date on your label and see if you are not one of them. If you are we want you to renew, so are making some very liberal offers by which you can advance your subscription without cost by doing a little work for us. Carefully read over the offers below. You surely have friends who ought to take GLEANINGS, and by obtaining their subscriptions you advance your own.

OFFER A.—We will advance your subscription to GLEANINGS three months free of charge for every trial subscriber you obtain for us at the rate of six months for 25 cents, new names only.

OFFER B.—Send us $1.00 for a year's subscription of a new subscriber, and we will advance your own subscription 6 months free of charge.

OFFER C.—Send us $2.00 for two one-year's subscriptions to GLEANINGS and we will advance your subscription one year free of charge, providing that one of the two year's subscriptions is for a new subscriber; the other can be a new name or a renewal for yourself or a friend.

OFFER D.—Send us $3.00 for three one-years' subscriptions to GLEANINGS and we will advance your subscription two years free of charge, providing that at least two of the three one-year's subscriptions are for two new subscribers; the other may be a new name or a renewal for yourself or friend.

OFFER E.—A copy of the 1905 edition, cloth-bound A B C of Bee Culture can be substituted for a year's subscription in Offers C and D, providing 20 cents extra is sent for postage.

THE A. I. ROOT CO.
Publishers
MEDINA, OHIO

Convention Notices.

Another slight postponement of the National convention seems to be unavoidable. The fat-stock show, upon which we have depended for reduced rates on the railroads, has been postponed two weeks. The reason given is "the inability of the builders of the amphitheater to secure structural steel for the same," and they don't wish to hold the show out of doors, hence the delay. Of course there will be no excursion rates during the first week in December; and as it would be suicidal to attempt to hold a convention without excursion rates the Executive Committee has decided to postpone the convention two weeks in order to take advantage of the stock-show rates. The dates for the convention will now be December 19, 20, and 21.

The place of meeting has also been changed to Brunt Hall, in the Bush Temple of Music, corner of Clark and Chicago Aves. This was done because it was feared that the accommodations at the Revere House might prove too limited. The Chicago bee-keepers, with their customary enterprise and liberality, will pay for the use of the hall. It is only five minutes' walk north from the Revere House, which will be headquarters for the members. This new place of meeting is in a new building where everything is modern. There are adjoining committee-rooms, toilet-rooms, good drinkng water, and elvator service, both day and night.

W. Z. HUTCHINSON, Secretary.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention at the Revere House, corner of Clark and Michigan Sts., Chicago, during the fat-stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are Dec. 5, 6, and 7. Rates at the hotel are 75 cts. for a room alone, or 50 cts. each where two occupy the same room. Meals are extra, or they may be secured at nearby restaurants. The program is as follows:

FIRST DAY.

Evening session, 7:30.—"Wax-rendering Methods and Their Faults," O. L. Hershiser, Buffalo, N. Y.; "Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-keeper?" by Hildreth & Segelken, New York.

SECOND DAY.

Morning session, 9:30.—"How many Bees shall a Man Keep?" by E. D. Townsend, Remus, Mich.; "Short Cuts in Bee-keeping," by M. A. Gill, Longmont, Colo.; "Producing Comb Honey and Extracted Honey on the same Colony," by Jas. A. Green, Grand Junction, Colo.; question-box.

Afternoon session, 2:00.—"The Control of Increase," by L. Stachelhausen, Converse, Texas; "Migratory Bee-keeping," by R.F. Holtermann, Brantford, Can.; The Dietic and Hygenic Relations of Honey, by Dr. Eaton; question-box.

Evening session, 7:30.—"Contagious Diseases among Bees, and how to Distinguish Them," by Dr. Wm. R. Howard, Ft. Worth, Texas; "Experimental Apiculture," by Dr. E. F. Phillips, Washington, D. C.

THIRD DAY.

Morning session, 9:30.—"The Honey-producers' League—Can it Help Bee-keepers?" by R. L. Taylor, Lapeer, Mich.; "The Business End of Bee-keeping," by N. E. France, Platteville, Wis.; "Successful Experience in the Making of Honey Vinegar," by H. M. Arnd, Chicago, Ill.; question-box.

Afternoon session, 2:00.—"In what Way can Bee-keepers Secure Their Supplies at Lower Prices?" by W. H. Putnam, River Falls, Wis.; "How the Producer and Dealer may Advance their Mutual Interests," by Fred W. Muth, Cincinnati, Ohio; question-box.

Evening session, 7:30.—"What have We to Hope for from the Non-swarming Hive?" by L. A. Aspinwall, Jackson, Mich.; "Poultry-keeping for the Bee-keeper," by E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Sec.

The 15th annual meeting of the Illinois State Bee-Keepers' Association will be held in Springfield, on November 21 and 22, 1905, at the G. A. R. Hall in the courthouse. The railroads will give a rate (open) of one fare and a third for the round trip, on account of the I. O. O. F. meeting the same week. Let all bee-keepers come and bring their wives, and help us to get out the best report we have ever had published. Our State has been so helpful to bee-keepers as to aid them in publishing their report and suppressing foul brood, so let us show our appreciation of the same by aiding in the wise use of the funds appropriated.

JAS. A. STONE, Sec.

The annual meeting of the South Idaho and East Oregon Bee-keepers' Association will be held at Parma, Idaho, Nov. 29 and 30. F. R. FOUCH, Director.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

Officers:

J. U. HARRIS, Grand Junction, Col., President.
C. P. DADANT, Hamilton, Ill., Vice-president.
W. Z. HUTCHINSON, Flint, Michigan. Secretary.
N. E. FRANCE, Platteville, Wis., Gen. Mgr. and Treas.

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THE CROWN **Bone Cutter** for cutting *green bones*. For the poultryman. Best in the world. *Lowest in price*. Send for circular and testimonials. **Wilson Bros., EASTON, PA.**

WANTED.—Beeswax. We are paying 26 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, Ohio.

BANKING BY MAIL

TO accommodate the large number of people who keep money at home, or in a local bank where it is earning little or no interest, this bank receives deposits by mail on exactly the same terms as though made in person. Deposits may be sent safely by postoffice or express money-order, New York draft, check on local bank, or currency. We will on request write you how you can bank safely and conveniently by mail, no matter where you live.

The SAVINGS
DEPOSIT BANK COMPANY
Medina, Ohio

ASSETS OVER HALF MILLION DOLLARS
A. T. SPITZER, Pres.
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The bank that pays 4 per cent

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc.
Consignments Solicited. Established 1875.

$4.60 FOR THIS "ECONOMY" BOILER AND FEED COOKER

FREIGHT PAID

The "Economy" Feed Cooker is the best built cooker on the market today. It is constructed so as to get the very best results from the smallest amount of fuel possible. The kettle is well and strongly made of the smoothest cast iron, and has a handle on each side so that it can be removed from the casing instantly. Will last a lifetime. The casing, or jacket, is one continuous sheet of cold rolled boiler steel, supported at the bottom by a heavy wrought iron band. This cooker has the largest fire door of any made, and is the strongest, most serviceable feed cooker ever sold at such a price, freight paid. Made in seven sizes to suit every need; furnished with hinged cover, elbow and one length of pipe with damper. We guarantee this cooker for one year. Send money with order today, or write for our large 1,000-page catalogue giving other sizes and thousands of money-saving bargains for the farmer and his family.

If you want to save 10 per cent on everything you buy, we have a plan you should know about; it will save you from $150 to $250 a year. Only costs a stamp to find out all about it.

The object of this Society is to save money for its members. For full information let us tell you how we do it.
Co-Operative Society of the National Supply Co.
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PEACH Grand lot of trees, grown on the bank of Lake Erie, more stocky and hardy than trees grown in the interior. Are two miles from any peach orchards, so free from borers and all other diseases Large stock of **Fruit Trees and Small Fruits, Grape Vines, Etc.** Headquarters for

Ornamental Trees, Shrubs, Plants, Bulbs, Seeds,

Forty Acres Hardy Roses, NONE BETTER GROWN. 44 Greenhouses of Palms Ferns, Ficus, Roses, Etc., Etc. 52 years. 1200 acres. Correspondence solicited. Valuable Catalogue FREE. **THE STORRS & HARRISON CO., Box 36, Painesville, O.**

850,000 GRAPE-VINES

120 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **LEWIS ROESCH, FREDONIA, N.Y.**

OUR SPECIALTIES

Cary Simplicity Hives and Supers;
Root and Danzenbaker Hives and Supers;
Root's Sections, Weed Process Foundation,
Bingham Smokers;
Bees and Queens in their Season;
Thirty-two-page Catalog Free.

W. W. Cary & Son, Lyonsville, Mass.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

HONEY QUEENS

Another car of bees offered for next season. Plenty of fine queens on hand at all times. Laws' Italian and Holy Land queens—the best bees on earth for business. Single queen, $1.00; six for $5.00. I can mail queens any month in the year. Eight-frame hive complete in the flat, 60c; 1½-story, 80c; full-depth supers, 26c; Hoffman rames, $15.00 per 1000. Hives made this winter only; but few orders will be accepted after March 1st.

W. H. LAWS, - - Beeville, Texas.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

CARTONS

Folding style for 4¼ sections, 1½, 1⅜, 1⅝, 1¾ inch wide, so long as they last, at $4.00 per 1000. . . Three-inch glass for shipping-cases at $10.00 to $15.00 per 1000 sheets. No more queens for this season, but instead we can sell you comb and extracted honey.

QUIRIN - THE - QUEEN - BREEDER
BELLEVUE, OHIO.

GET WINTER EGGS
without artificial heat, egg-foods, stimulants—an easy, inexpensive positive way. Our FREE booklet tells how to prevent fowls suffering from roup, colds, cholera, loose bowels, etc., and how to get eggs in coldest weather. Send a postal to-day to
CHARLES SCHILD CO., 1 Frankfort St., Cleveland, O.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

Agents, Agents!

Anybody Can Do It.

We want good live representatives to take orders for "Peuro or Pearl" medallions; entirely new; sell at sight; big money; exclusive territory given; agents' supplies; novelties up to date. Write at once.

Universal Manufacturing Comp'ny
Pittsburg, Pa.

Now's the Time to Order

Your bee-hives, sections, shipping-cases, berry-boxes, and crates for the coming season. By sending us a list of goods wanted we can save you money. :: ::

Sheboygan : Fruit-box : Company
Sheboygan, Wisconsin

ROOFING-PAPER, two-ply, 75 cents per 100 square feet. G. ROUTZAHN, Biglerville, Penn.

"The Best Farm Paper on Earth"

BARNUM'S

MIDLAND : FARMER

Semi-monthly—St. Louis—50c a Year

A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer
W. M. BARNUM, EDITOR
Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

Our Syracuse, N. Y., Branch

is prepared to ship promptly all Bee-keepers' Supplies, giving the same discount as Medina.

The A. I. Root Co., Syracuse, N. Y.

F. A. Salisbury, Manager.

Discount for November Cash Orders, 8 per cent

There are two weeks left for you to take advantage of it. We would like to quote you net prices on the goods you will need in the spring. Will you not give us the opportunity? For ROOT'S GOODS IN MICHIGAN, write . . . . . .

M. H. Hunt & Son, Bell Branch, Mich.

Near Detroit

8 PER CENT DISCOUNT IN NOVEMBER

We have arranged the following discounts for early

CASH ORDERS

this season:

Before	December 1	8 per cent
"	January 1	7 "
"	February 1	6 "
"	March 1	4 "
"	April 1	2 "

DEALERS.—A partial list of dealers (wholesale and retail) in Root's goods will be found on the first inside cover page of this issue. A list of local dealers may be had by writing us at Medina. Save time and freight by ordering of the dealer nearest you.

These discounts are intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about ten per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books and papers, labels, and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog. ... ...

THE A. I. ROOT CO.

FACTORY AND EXECUTIVE OFFICE

MEDINA, OHIO

BRANCHES

Chicago—144 E. Erie St.
Philadelphia—10 Vine St.
New York—44 Vesey St.
Syracuse, N. Y.
Mechanic Falls, Me.
St. Paul—1024 Miss. St.
Washington, D. C.—1100 Maryland Ave.
Havana, Cuba—Obrapia 14.
Kingston, Jamaica—115 Water Lane.
Agencies everywhere—see the first inside cover page.

BEE-KEEPERS' EARLY DISCOUNTS

Now is the time to send in your order for goods for use next season, and for all orders where cash accompanies we allow the following discounts: : : : :

Before December 1	deduct 8 per cent
Before January 1	deduct 7 per cent
Before February 1	deduct 6 per cent
Before March 1	deduct 4 per cent
Before April 1	deduct 2 per cent

Freight rates from Toledo are the lowest. Can take honey and beeswax in exchange for supplies if you desire. Send for free illustrated catalog. It describes and illustrates every thing for both poultry and bee keepers. . .

GRIGGS BROTHERS
523 Monroe St., Toledo, O.

Dadant's Foundation

It Excels. We Guarantee Satisfaction.

* * *

BIG DISCOUNTS

FOR EARLY ORDERS

* * *

BEE-SUPPLIES OF ALL KINDS

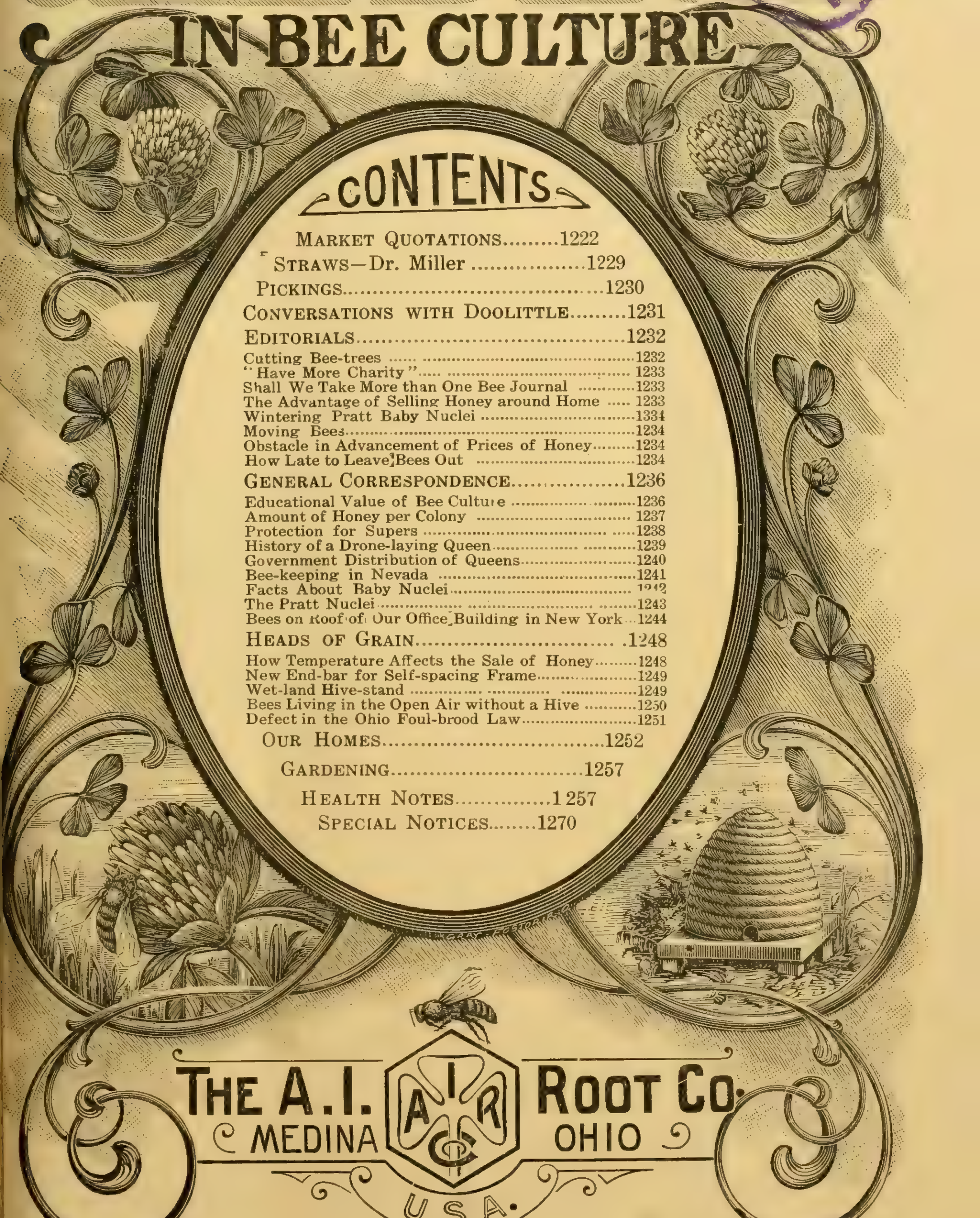
BEESWAX WANTED AT ALL TIMES

* * *

DADANT & SONS
HAMILTON, ILL.

Volume XXXIII DECEMBER 1, 1905 Number 23

GLEANINGS IN BEE CULTURE



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THE A. I. ROOT CO.
MEDINA OHIO
U.S.A.

Eastern Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

OUR

Supplies at Convenient Distributing Points

Distributing Stock from Shipping Centers

Experience has proven to us that, as a rule, freight is handled more promptly and delivered in less time from large shipping-centers, especially in small lots. It would be impossible for us to ship promptly direct to consumer all the goods we now manufacture within the few spring months when most of the demand occurs. In order to handle the large volume of trade requiring Root's Goods, in a prompt and satisfactory manner, we send them in carlots to dealers and agents at many distributing-centers, as per list below. This we do during the fall and winter to a great extent, supplementing their stock with further shipments in the busy spring and summer months when there is the greatest call for goods.

Well-known Dealers

The dealers, whose names follow, are well known to bee-keepers. They have been, for the most part, long established in the bee-supply trade, and have a knowledge of the business most valuable indeed to the bee-keeping fraternity. Their advice may be had on any question of supplies, etc., for the asking.

The Large Stocks

Nowhere else is it possible to find such well-assorted stocks of goods for bee-keepers as are carried by dealeas in Root's Goods. No matter whether you require a little five-cent article or a carload, these dealers can serve your promptly. Stocks are frequently carried amounting to $5000 and upward.

Shipping-points

You will observe that these dealers have excellent shipping facilities—guaranteeing you quick delivery and low freight rates.

Medina Prices

The prices, terms, discounts, etc., are identical with the home office at Medina (with rare exceptions). Full particulars may be had before ordering, if desired, by writing the dealer nearest you. You can, however, use our Medina catalog and terms, and, if any variation, your dealer will advise you, if requested, before shipping.

Other Dealers

Besides the following list, there are many others who handle some of Root's Goods. The following is by no means complete, for hundreds of dealers come to us for many of the goods of which we are the exclusive manufacturers. *Insist on getting Root's Goods.*

Local Dealers

In addition to the following list, who carry large stocks, and furnish at both *wholesale* and *retail*, we have in every State a large number of local dealers who handle our goods exclusively. As there are over 500 of these dealers, space will not permit giving their names at this time; but information will be given by us, on request, to any bee-keeper regarding the dealer nearest him handling Root's Goods.

Alabama

* Wetumpka............J. M. Jenkins

Canada

Toronto............E. Grainger & Co.

California

* Fresno........Madary Planing Mill
* Los Angeles....California National Honey-producers Association

Colorado

Denver..The L. A. Watkins Mdse. Co.
Fruita..Fruita Fruit & Produce Assn.

District of Columbia

Washington.......The A. I. Root Co.

Georgia

Savannah..........Howkins & Rush, 124 Liberty St.

Illinois

Chicago..........The A. I. Root Co. 144 East Erie Street.

Indiana

Indianapolis........Walter S. Pouder
Evansville............. Vickery Bros.

Iowa

Des Moines......Joseph Nysewander

Kansas

Augusta................ Carl F. Buck

Mississippi

Brazelia..........George A. Hummer

Massachusetts

Boston..F. H. Farmer, 50 Charden St.
Lyonsville.... ....W. W. Cary & Son

Maine

Mechanic Falls....The A. I. Root Co.

Maryland

Baltimore...Rawlings Implement Co.

Michigan

Bell Branch.......M. H. Hunt & Son
Fremont............George E. Hilton

Minnesota

St. Paul..........The A. I. Root Co. 1024 Mississippi Street

Missouri

High Hill.Jno.Nebel & Son Supply Co.
Springfield......Springfield Seed Co.
St. Louis.............Blanke & Hauk

New Mexico

Carlsbad............Edward Scoggin

New York

Syracuse..........The A. I. Root Co.
New York City.....The A. I. Root Co. 44 Vesey Street

Ohio

Columbus Grove..McAdams Seed Co.
Toledo..Griggs Bros., 521 Monroe St.
Cincinnati...........C. H. W. Weber, 2146 Central Avenue

Oregon

* Portland.........Portland Seed Co.

Pennsylvania

DuBois...........Prothero & Arnold
Philadelphia...... The A. I. Root Co. 10 Vine Street
Williamsport...........E. E. Pressler 633 Lycoming Street

Texas

Dallas.....Texas Seed and Floral Co.
San Antonio........Udo Toepperwein
Uvalde............... D. M. Edwards

Utah

Ogden.......The Superior Honey Co.

Virginia

Spottswood ....W. E. Tribbett

* These dealers buy our goods in carload lots but supplement them with local-made goods.

The A. I. Root Company, Medina, Ohio, U. S. A.

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Complete stock for 1906 now on hand. Freight rates from Cincinnati are the lowest, especially for the South, as all freight now goes through Cincinnati. :: :: ::

7% DISCOUNT

For Cash Orders Received in

DECEMBER.

This applies to all goods with exception of shipping-cases and other honey packages for current use. :: :: ::

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW YORK.—Comb honey—There is a fair demand for all grades of white as well as buckwheat, and receipts are about sufficient to meet the demand. Prices are unchanged. We quote fancy white at 14@15; No. 1 white at 12@13; amber, at 11@12; buckwheat, at 10@11. Extracted honey.—Market is well stocked with California, which is coming along in large quantities. The demand is fair, mostly in small-sized lots. Prices remain about the same, 5½@6½ per lb., according to quality and quantity. Southern in barrels, at 52@57 cts. per gallon New crop West Indian is now beginning to arrive and is selling at from 60@63c per gallon. Beeswax firm at 28@30c per lb.

HILDRETH & SEGELKEN,
Nov. 17 265-7 Greenwich St., New York.

TOLEDO.—The market on comb honey at this writing remains quite firm, and the demand is equal to the receipts. As usual at this season of the year, there is a good call for fancy comb honey, and bee-keepers having any to offer will do well to get rid of it before the severe cold weather comes on. We are now getting in a retail way, for strictly fancy white comb honey, 15@16c; No. 1, 14@15; fancy amber honey, 13@13½; buckwheat, 13c. Extracted white clover in barrels brings 7@7½c; cans, 8@8½; amber, in barrels, brings 5@5¼; cans the same. Beeswax, 26@28c. The above prices are our selling prices.

GRIGGS BROS.,
Nov. 16, Toledo, Ohio.

ATLANTA.—The honey market here is rather quiet, receipts and demand being about equal. We quote: Fancy white, 12½@14; A No. 1, 11@12½; No, 1, 10@11. No demand for extracted. Beeswax, 28.

JUDSON HEARD & CO.,
Nov. 20. Atlanta, Ga.

ST. LOUIS.—Amber color, Southern honey, 5¼@5½c per lb., in barrels; 6@6½ in cans. California light amber, 6½@7c in 5-gallon cans. Comb honey, fancy white, 14c per lb.; A No. 1, 13c per lb.; No. 1, 11@12. Beeswax, 28c per lb. for prime.

R HARTMANN & CO.
Nov. 17. 14 South Second St., St. Louis, Mo.

PHILADELPHIA.—The demand has been very good for honey in the past ten days. In fact, it takes a little sharp cool weather to get people started; and when they do start, the demand continues for some months. We would say, now is the height of the honey season. We quote, in a jobbing way, fancy comb, 15@17c; No. 1, 13@15; amber, 12@13. Extracted, fancy white, 7@8; amber, 6½. Beeswax firm at 28. We are producers of honey, and do not handle on commission.

W. A. SELSER,
Nov. 20. 10 Vine St., Philadelphia.

KANSAS CITY.—The demand for comb honey remains good at $3 00 to $3.25 per case. There have been several cars of honey in here lately, and market is a little weaker than it has been; $3.15 is the ruling price. Extracted honey is slow—6@7. Beeswax, 25.

C. C. CLEMONS & CO.,
Nov 16. Kansas City, Mo.

BUFFALO.—The demand has been very good for white honey the past two weeks. Prices are strong but not enough to make any advance. If the present demand continues, no doubt prices will advance ½ cent. Fancy and A No. 1 white comb, 13@14; No. 1, 12½@13; No. 2, 11@12; No. 3, 10@11; No 1 dark, 11@12; No. 2, 9@10. Extracted, white, 6½@7; amber, 6@6½; dark, 5½@6, Beeswax, 28@30.

W. C. TOWNSEND,
Nov. 23. Buffalo, N. Y.

CHICAGO.—There has been a steady trade in honey to the small dealers who usually lay in a little stock at this time of the year. Prices are practically unchanged. The fancy grades of white comb bring 14@15c; that which is a little off, 1c to 2c less; amber grades, 10@12c; dark and damaged lots, 7@10c. Extracted, white, 6@7½; amber, 6@7. Beeswav steady at 30.

R. A. BURNETT & CO.,
Nov. 17. 199 South Water St., Chicago, Ill.

DETROIT.—Honey is getting somewhat scarce, and demand seems considerably greater than the supply. Prices rule about as follows: Fancy and A No. 1 white comb, 12½@13c; No. 1 and No. 2 white comb 11@12. Darker grades scarce, and about 10@11c. Extracted, white clover, 6½@6. Beeswax, 26@28.

M. H. HUNT & SON,
Nov. 20. Bell Branch, Mi6h.

CINCINNATI.—The nice weather holds back the demand for comb honey. Crops seem to be exceedingly short, and producers in the West keep the prices high. We quote: Fancy water-white and No. 1 white clover, 14@16; No. 2, 12@14. Extracted seems to be more plentiful, and we quote it in barrels, light amber, 5¼@5½; in cans, ½c. more; white clover, 7@8. Beeswax, 28@30.

C. H. W. WEBER,
Nov. 17. 2146-8 Central Ave., Cincinnati, O.

SCHENECTADY.—Honey continues to move off freely, and stock of white-clover comb is quite reduced; also buckwheat in 60-lb. cans. There seems to be a greater demand for 60-lb. cans this season than for 160-lb. kegs. No change in quotations.

CHAS. MCCULLOCH,
Nov. 21. Schenectady, N. Y.

FANCY WHITE EXTRACTED HONEY
CRATES 2-60 LB. CANS; 8c
TWO OR MORE CRATES; 7½
LARGER LOTS, WRITE FOR SPECIAL PRICES. ALL F. O. B. CINCINNATI. CASH WITH ORDER. SAMPLES 10c. TO PAY POSTAGE.
THE FRED W. MUTH CO.
No. 51 WALNUT STREET, CINCINNATI, OHIO.
SEND FOR CATALOG OF BEE SUPPLIES WITH SPECIAL DISCOUNT.

BOSTON.—These seems to be a lack of interest in honey in this market, owing partially to the stock of old goods carried over from last season. Our market is 16 c for fancy cartons; A No. 1, 15; No. 1, 14; No. 2, 12; extracted, 7@8. **BLAKE, SCOTT & LEE CO.,**
Nov. 24. Boston, Mass.

FOR SALE.—Three barrels of buckwheat extracted honey: new barrels; weight, 390 lbs. net each, at 6c on car. Sample free. **E. D. TOWNSEND**, Remus, Mich.

FOR SALE.—Clover or buckwheat extracted honey. Write for price, and quantity desired. Sample, 10 cts. Comb honey all sold. **C. B. HOWARD**, Romulus, N. Y.

FOR SALE.—A No. 1 white comb at 15 cts.; No. 1, 14 cts.; No. 2, 13 cts.; amber and buckwheat, 12 cts. Above honey is in glass-front cases, 24 sections to the case. Extracted clover, 8 cts.; amber, 7½ cts.; in new 60-lb. cans. **QUIRIN-THE-QUEEN-BREEDER**, Bellevue, O.

FOR SALE.—Buckwheat honey, in 60-lb. cans, at 6 cts.
C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—Extracted honey—fancy white, 7 cts.; fancy amber, 6½ cts.; ¼ cent less in five-case lots or more. **C. C. CLEMONS & CO.**, Kansas City, Mo.

FOR SALE.—Eight thousand pounds of fine table-grade extracted alfalfa honey at 6 cts. per pound, f. o. b. here. **J. T. HAMMERSMARK**, Reno, Nev.

FOR SALE.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat.
G. H. ADAMS, Mill St., Bellevue, Schenectady, N. Y.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
EVANS & TURNER, Columbus, Ohio.

WANTED.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
THOS. C. STANLEY & SON,
Manzanola, Colo., and Fairfield, Ill.

WANTED.—Comb honey; Michigan preferred.
W. D. SOPER, Jackson, Mich.

WANTED.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.
M. V. FACEY, Preston, Fillmore Co., Minn.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Comb and extracted honey. State kind, quantity, and how put up.
CHAS. KOEPPEN, Fredericksburg Va.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St. New York.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. **R. A. BURNETT**,
199 South Water St., Chicago, Ills.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. **GRIGGS BROS.**, Toledo, Ohio.

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A GOLD MEDAL
at the World's Fair
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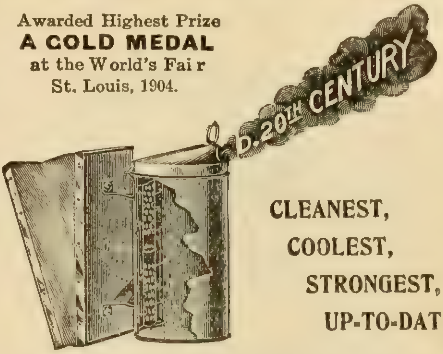

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It has no snout to clog with soot.

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I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

Yours truly, N. E. France.

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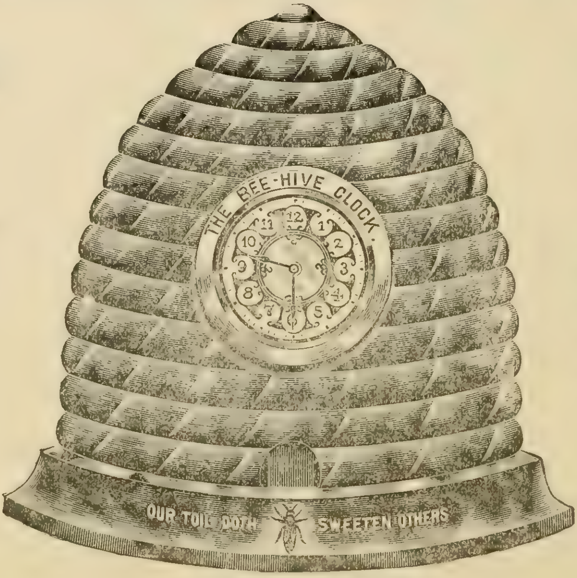
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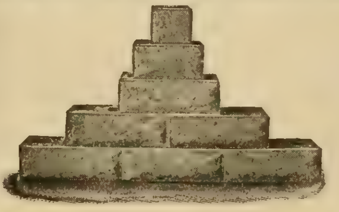

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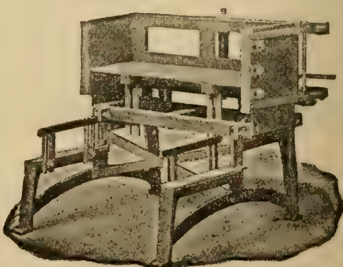

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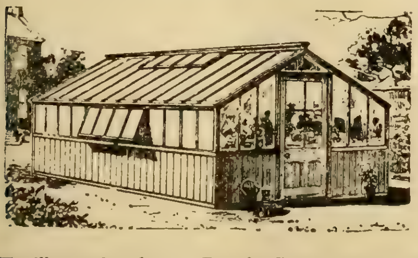

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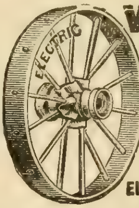

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H. M. ARND, MANAGER

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A Journal Devoted to Bees and Honey and Home Interests

Illustrated Semi-Monthly

Published by The A. I. Root Co.
$1.00 per Year
Medina, Ohio

Vol. XXXIII. DEC. 1, 1905. No 23

Stray Straws

By Dr. C. C. Miller.

A. I. Root doesn't know that he has had experience with blue grass, but he has with June grass, page 1201. Friend Root, blue grass is *Poa pratensis*, and so is June grass. They're one and the same thing.

So A. I. Root "will go back to his old love, the bees," p. 1177. Good! But say, Bro. A. I., don't go so crazy on bees that you can't stop now and then to give a whack at humbugs, rotten politics, and some other things.

I agree perfectly with you, Mr. Editor, in the ground you take, p. 1174, as to the importance of having piles of sections well ventilated. I didn't raise any question as to that; but my question was as to the need of another set of receptacles for it, instead of piling up in the supers. Possibly friend Green has receptacles that are more open than supers, but I didn't understand it so. [I stand corrected.—Ed.]

A question is asked of me by that canny Scotchman, D. M. Macdonald, *British Bee Journal*, p. 425. Referring to what I say of that group of teachers so grittily holding on to their bee-covered combs in that picture in Gleanings, page 914, he says: "Thanks, Dr. Miller, for what you say of my young brethren in the group; but why leave out the gentler sex? *I* think they are so *bonnie* that they must all be of Scotch descent. What can I say more than that?" Friend Macdonald, I don't know any thing better to say of them.

"I have often tried to satisfy myself as to whether the bee is more profitable from the standpoint of wax or honey, but I can't do it," says Stenog, p. 1177. If you mean whether one can make more money by producing honey or wax, you ought to be able to satisfy yourself easily. You probably never saw a bee-keeper who made as much money from his wax as from his honey. The fact that there are a few places where wax is more profitable cuts little figure in the case, I think. I believe it is not because wax is so profitable, but because honey is so unprofitable, the expense of getting to market eating up all the profit on honey. If it costs 6 cts. per lb. to reach the market, and on that market brings 6 cts. and wax 30, the honey will be practically worthless, while the wax will bring a paying price.

Prof. Bigelow, I respect your plea, page 1187, for attention to some other things than simply those that pertain to getting the most honey from bees; but we may as well recognize the fact that naturalists and bee-keepers are in two separate classes. We look up to naturalists as a superior order of beings, but it would hardly do to have nothing but naturalists. Shoemakers are needed; so are bee-keepers. So please don't blame us too much for being bee-keepers, and don't blame us for looking at things from a bee-keeper's standpoint. When bee-keepers find in a periodical professedly published for bee-keepers the statement that those who practice tanging are not fools, you may always expect that they will be unnaturalistic enough to think such a statement comes very close to advising tanging. With all this, I am still thankful to you for trying to have bee-keepers enjoy some of the higher delights of the naturalist.

"It is always advisable, *where it can be done*, to put cellared bees into protecting-cases when they are set out in the spring," page 1179. That raises two questions: 1. Where can it not be done? 2. Would it pay me to use such cases? [Where can it not be done? Some would object on account of the expense or extra work. Would it pay you? I am inclined to think it would. I have noticed this: After a colony is set outdoors, and there comes on a severe cold spell for four or five days or a week, many of the bees die. They have been getting old, and after their long confinement in the cellar they suffer more or less from exposure when set outside with only the single walls of the hives to protect them against the cold. Suppose, doctor, next spring you put a dozen or so cases over a part of your colonies and carefully note the results. If these colonies seem stronger, and go into the supers sooner than those that are not protected, the cost of the winter cases when divided up over a series of years will be more than made up by the saving in the bees over winter. I believe it is always an advantage to set bees out as early as possible to get the advantages of early cleansing flights; then if they are warmly protected after that, a cold snap for several days will not do very much harm.—Ed.]

THE QUESTION is asked, p. 1180, "If gentleness were their only redeeming quality, would that be sufficient reason for introducing into this country Caucasian bees?" I unhesitatingly answer, yes. There are some, of whom Prof. Bigelow is an extreme type, who care little or nothing for the amount of honey secured, but they care much for bees as an interesting study. I hasten to offer a provisional apology to Prof. Bigelow for venturing to use his name in that connection, for it is just possible that for him the sting itself is one of the most interesting subjects of study. Others have such a fear of stings that they are debarred from keeping bees, although they would be glad to keep bees that would not sting, even if they secured only half a crop. Still others, who do not care particularly about stings themselves, are debarred for fear of close neighbors being stung. The needs of these three classes are a sufficient reason for introducing bees that will not sting, even if that be their only recommendation.

The question, however, was no doubt intended to have a more general application, asking whether gentleness alone would be a sufficient reason for bee-keepers in general supplanting their present bees with those which had no other recommendation than greater gentleness. No, a thousand times no. If we were told, "Here's a bee that will give you a fourth more honey, but it will give you a fourth more stings," I think the majority of bee-keepers would take the extra stings for the sake of the extra yield. A large number would probably not want bees at all that didn't sting. I, for one, wouldn't have them — not that I like stings; but I want bees for whom thieves will have a wholesome respect. [I meant to say the same thing; but you have said it in so much less space, and so much better, that I simply say amen to all you say.—Ed.]

"DON'T WE KNOW that, beyond peradventure, certain conditions, such as dampness and cold as found in the average refrigerator, are detrimental?" says a footnote, page 1173. If you will give the matter close attention you may be surprised to find that material put into a refrigerator, instead of becoming moister, dries out. That's the way it does "in this locality" at least. I have known section honey that had been roasted in an attic to suffer no harm at all from zero weather in the same place the following winter, and have wondered whether that same honey would not just as well stand the temperature of a refrigerator. [Possibly you are right as to the question of moisture; but the constantly melting ice in the same compartment with the food stuff would suggest a damp cold. But granted that the refrigerator was dry inside, the temperature somewhere about 38 or 40 would be just right to hasten granulation. Tightly corked extracted honey put on my window-sill, where it is quite dry, will candy, usually, before December. But let me tell you, doctor, honey is not liable to candy in extreme cold, especially when the temperature is below zero. We tried last winter, and the one before, to make different lots of honey candy in zero cold, but failed. When it got warmer it began to "cloud up" very nicely. It will candy a good deal quicker in a temperature of 30 or 40 than below that. It will candy quicker still in a temperature that alternates from moderate cold to warm. Our experiments for the last two winters have shown these facts to us very clearly; so it would appear that honey that will not candy in a garret when down below zero proves nothing in favor of the conditions afforded by the ordinary refrigerator.—Ed.]

Pickings from Our Neighbors' Fields
By
"Stenog."

Continuing the list of foreign bee journals there is but one more to mention that is printed in French—namely, that old standby, *Revue Eclectique*, printed at Sainte-Soline, par Lezay, Deux-Sevres, France. It covers a wide range in modern bee-keeping.

I now come to our pile of German exchanges. The first I pick up is the *Deutsche Imker aus Boehmen*, having a circulation of 9500. It contains a great amount of reading-matter, and is up to the times. It is printed in Prague, the capital city of Bohemia, Austria. Our German friends will be pleased with this journal I am sure.

The *Muenchener Bienen-Zeitung* is edited by J. Fink, Munich, Bavaria.

Bienen-Zeitung is in its 20th volume, edited by J. B. Kellen, Limpertsburg, near Luxemburg, Germany.

Praktischer Wegweiser fuer Bienenzuechter is published in Oranienburg-Berlin, Prussia.

Bienen-Vater has reached the venerable age of 37 years, with a circulation of 10,000. It is a great bee journal, and stands, probably, at the head of German bee literature. It is printed in Vienna, Austria.

Bienenzucht is published by F. Gerstung, in Ossmannstedt, Prussia.

Illustrierte Monatsblaetter fuer Bienen-

zucht is published by Theodor Weippl. a celbrated bee-keeper, in Vienna, No. 10 Leopoldstrasse.

Schweizerische Bienen-Zeitung. This is the most beautiful foreign bee journal we get so far as its printing is concerned, and its contents are excellent. It is edited by Goldi-Braun, Altstatten, Canton of Saint Galle, Switzerland.

Pfaelzer Bienen-Zeitung is edited by Ph. Reidenbach, in Reyborn, Prussia.

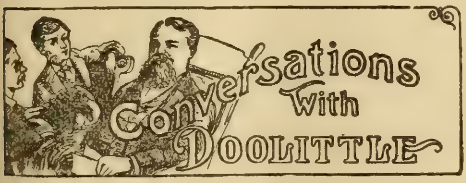
Leipziger Bienen-Zeitung is a very prominent German bee journal in its twelfth year. As its name indicates, it is printed in Leipzig. Germany.

Rheinische Bienen-Zeitung. I believe this is the oldest bee journal in the world, being now in its 56th year, making it about a dozen years older than the *American Bee Journal.* It has a very fresh appearance, however, and is an excellent journal. It is edited by Anton Schulzen, Viersen, Prussia.

Concerning the total number of bee journals published, I append the following, just handed me by the senior editor, A. I. Root:

> Now, friends, suppose you guess how many periodicals there are in this world of ours, devoted to bee culture, honey, etc. Well, as you will never guess right I will tell you. There are 83 in all. Only 7 of the 83 are published in the United States, and there is only one in Canada. The others are published across the water. The above statement gives us an idea of how little we are. There are almost if not quite a dozen periodicals published in regard to navigating the air, but not one of them is published in America; and it is a little sad to think that, with all these publications, some having run for fifteen or twenty years, the first real flying that was ever done was right here in America, and yet we have not even one journal devoted to air navigation.

Probably not over half of the above number reach us. A list of all not so far mentioned will appear in our next issue.



WHICH WAY SHOULD COMBS RUN IN HIVES?

"Say, Mr. Doolittle, I came over to have a little chat with you regarding the way combs should run in the hives. Have you a little time for such talk?"

"Yes. But which way do the combs run in the hives you are using?"

"They run toward the entrance."

"Very good. And is not that the way they should run?"

"I had supposed so till lately. The past fall I cut several bee-trees and found that the combs almost universally ran crosswise of the entrance, while a day or two ago I examined some old box hives I had stored away, from which I had transferred bees a few years ago, and to my surprise I found that the most of the attachments where the combs had been were on the sides of the hives, or to that part of the hive, each side of the entrance, rather than to the front and back part of the hives. Since I have seen these things I have been wondering if we were not making a mistake in having the combs run toward the entrance as we do. It would seem that, if the bees place their combs crosswise the entrance while in a natural state, it would be right for us to do the same. Would it not?"

"Your experience has been different from mine in this matter, for in the cutting of a dozen or more bee-trees, and in transferring bees from box hives by the score, I have found that the bees built their combs at any and all angles to the entrance, where there was nothing in the tree or hive in the way of little projections to start them building their combs in a certain direction. Where there is some little projection of wood downward from the top of the hive or tree, having a knife-like edge, the first comb is almost sure to be started on that; and as runs the first comb, all the rest are likely to follow, unless, perchance, there are some other like projections running angling, or in an opposite direction from the first started on, in which case the combs are likely to run in any and all directions throughout the tree or hive."

"That part of the matter is something I had not thought of, and, come to think of it, the box hives I examined had strips across the top, with openings between these strips, so that the bees could more easily enter the supers when they were put on."

"Exactly. And thus you have only the trees to hold up your ideas, for the bees would build on the strips with a hive fixed at the top, as you say; and as I have found the combs in trees running in all directions, it would seem that nature has no choice in the matter, and, if so, then we are at liberty to do as we please unless we have better reasons for running the combs one certain way of the hive instead of any other."

"You may be right. If so, why do most of the apiarists have the frames in their hives run lengthwise to the entrance?"

"I think this matter has been discussed during the past to some extent; but I do not now recall just what the reasons were that were given for having the entrances at the ends of the frames."

"But you must have some reasons for having yours run that way."

"Yes."

"What are they?"

"First of all, if our bees are to thrive the water from rains and snows should not be allowed to go inside of the hive any more than they should be allowed to run all over the floors of our houses in which we live. Our houses are provided with doors and thresholds, but this can not well be provided for a bee-hive; hence to overcome this water matter we set the hive on an incline, or give it a pitch toward the entrance, so that, should any water beat in there, it would immediately run out and away from the habitation of our pets."

"Well, what has that to do with the matter of which way the combs run?"

"Very much, for nature has so ordained that the bees always build their combs perpendicular, or 'plumb,' as we generally speak of this matter; and so if we have the hive tip or slant toward the entrance, in order that the water may run out, and at the same time have the frames run crosswise of the entrance, the bees, in building their combs, will start right at the top; but in going downward in a perpendicular direction the bottom of the first comb next the entrance will strike the side of the hive before it comes to the bottom of the frame, and all the others will have their bottoms over in the next frame thus making the combs not interchangable even should they be considered movable. But where the frames run with the entrance, the hives can be leveled crosswise of the entrance, no matter how great the pitch the other way, and all combs will be built true in the frames."

"I can see that part now you speak of it. But the hive could be set level while the combs were building, could it not?"

"Yes. But if the hive is tipped toward the entrance, even after the combs are built the bottom of the first frame is liable to be glued to the end of the hive from its swinging against it, and other frames will be glued to the bottoms of others on account of their not swinging equally in accord to the tip of the hive. And, even did they not do this, there are other things to be considered."

"What are they?"

"Most bee-keepers prefer to have their sections run the same way that the combs in the hives do; and, if so, the bottom of the foundation in the sections is swung to one side, where the hive is inclined toward the entrance, which causes bulged and irregular combs in the sections, with the prospect of their being fastened to the separators, so that they are torn in taking out in a way that much of the honey is rendered unsalable. And where only starters are used in the sections, matters are still worse, as then we have the same trouble to contend with that we did in the filling of the frames in the hive."

"Well, surely there is more to this thing than I had thought about. Have you any other reasons for having the combs run toward the entrance?"

"Yes. Where the combs run lengthwise of the entrance the bees returning from the fields can run up between any range of comb they like; while where they go crosswise it tends toward the massing of many bees on the first one or two combs, so that the nurse-bees have more trouble in taking the loads of nectar from these field-bees as they come in, thus massing a lot of bees right at a spot where it is necessary to have the passageway clear, not only that the going and coming bees may have plenty of room, but that sufficient room be given for ample ventilation of the hive. I have noticed that, where the combs run crosswise of the entrance, there were many more fanning bees at the entrance trying to keep up a proper circulation of air (and that even on moderately warm days) than there would be with those hives which had the combs running the way they usually do; and when it came so warm that the bees were crowded out, these crosswise-frame hives were the first to show bees on the outside."

"Well, I guess I will not make my hives for the crosswise frames this winter, as I was intending to do before we had this talk."

Editorial
By E.R. Root

Now is a good time to clean up your old slumgum and run it through some form of wax-press.

The wealth of illustrations that we shall have in our Dec. 15th issue will more than please our friends.

In our Christmas number it will be explained *why* Mr. Alexander is able to run so many colonies (750) in one place, and how it will be possible for him to increase that number to 1000 all in one locality.

We have just devised a metal-spaced Hoffman frame which is pronounced by all who have seen it to be the best self-spacer ever yet brought out. It will retain all the features of the Hoffman, and remove the very last objection that some of the critics have named against the standard Hoffman. There will be illustrations describing it shortly.

CUTTING BEE-TREES.

Lest some bee-keepers should forget to ask permission before cutting down a bee-tree on land belonging to a neighbor, we wish to call the attention of our readers to a newspaper clipping taken from *The New Era*, of Hillsboro, Mo., that was sent to us by one of our correspondents. This is a timely warning, for it illustrates the folly of the appropriation of property not our own.

> H. B. Drake vs. V. E. Canepa; trial by jury, and verdict for $50 for plaintiff.
>
> The case of Drake v. Canepa, tried in the circuit court here last week, resulted in a judgment for Drake. This is a bee-tree case, and we have been requested to make mention of it. W. A. Canepa located a bee-tree on land claimed by Drake, and in company with five or six others cut the tree down. Drake filed a complaint of trespass against Canepa before Justice Osterwald, where the case was tried and lost by him. He brought it to the circuit court on appeal, and the court instructed the jury that if Canepa with others cut down a tree standing on Drake's land they should find the issues for the plaintiff, and assess his damages at whatever they found to be the value of the tree. The law is plain; and the cutting of any timber, standing or growing, on the land of another, is trespass, for which the owner may sue, and recover treble the value of the timber so cut down.

NEARLY 25,000 SUBSCRIBERS, AND NEW ONES COMING IN AT A RAPID RATE.

As an evidence of the way our subscription-list is jumping up, I will state that we received something over 1000 new names last month. Some days we get over 100 new subscriptions. The improvements that we are making in our journal, and the special-issue numbers that we expect to get out during the coming year, evidently take well with our subscribers, new and prospective. And, by the way, very few old ones are dropping out. Our list to-day is very nearly 25,000, and we confidently expect to push it up to 40,000. The liberal patronage that we have been getting from bee-keepers will enable us to make the journal more than ever like a standard magazine—one that will be indispensable to the honey-producer.

"HAVE MORE CHARITY."

THE foregoing is the title of an editorial in the last issue of the *Bee-keepers' Review*, which has a good deal of practical hard common sense in it.

> I wish our great family of bee-keepers would have more charity than they do for one another. Perhaps the majority *do* think well of their fellows, but there are a few who are too much given to fault-finding, to seeing a man's faults and failings instead of his good qualities. I don't say that men or their actions ought never to be criticised or condemned; but many times are men fairly *abused* for something for which they are not to blame. I sometimes get letters accusing me very sharply of something for which I am not in the least to blame. If you think that a man has made a mistake, or has done wrong, it is not always best to ignore it or keep still about it; but before condemning a man, ask in a kind and courteous way for an explanation. Don't be so ready to impugn a man's motives until you know all of the circumstances.

While I am about it I might as well say I indorse still another editorial on the use of a *nom de plume* by the same writer.

> As a rule I do not approve of the use of a *nom de plume*. There are cases when modesty might be an excuse; where a man, or more likely a woman, might be willing to write but did not care for the resulting publicity. But when a man enters into a critical argument, and proceeds to "roast" some opponent, he ought to come out fair and square with his own signature. To strike a man in the dark, and then dodge behind a *nom de plume*, marks a man as a *coward*.

SHALL WE TAKE MORE THAN ONE BEE JOURNAL?

I HOLD in my hand a very complimentary letter from one of our subscribers regarding the improvements that have been made in GLEANINGS from time to time. He thinks it covers the whole ground so thoroughly and so well that there is no use of his taking more than one bee journal. While we appreciate most thoroughly this voluntary expression of our correspondent, I desire to say that I believe he is mistaken. If any one keeps bees for the money he can make out of them, he ought *by all means* to take not only one journal but two or three of them. GLEANINGS does not pretend to cover the whole field of apiculture. The personal bias of an editor, even though that bias be unconscious, may cause him to emphasize certain developments of bee lore to the total neglect of all others. As I look over our exchanges I can see fields that they are covering that GLEANINGS is not; and, conversely, I can see fields that we are covering that they do not.

W. L. Coggshall, perhaps the most extensive bee-keeper in the world, once said to me that he could not afford not to take all the bee papers published in the United States; and that, moreover, he could not afford not to scan every page after they came into his hands. "But," you say, "he owns and operates some two or three thousand colonies, while I have only fifty. One journal is enough for me." Let us see how nearly correct that is. Suppose the average annual surplus is 25 lbs. per colony, of comb honey. I am purposely putting the figures low so as to give my friend the benefit of the figures. We will say that he sells the honey for 15 cts. at the commission man's, and that it nets him 10 cts. clear. That will make $2.50 per colony, or $125 in all. I do not know of a bee journal published but may contain some hint that will be worth several times the subscription price for the year. If three bee-journals cost $3.00, or on a clubbing basis $2.50, it would be very strange if our friend with fifty colonies could not get more than $2.50 out of them. While the net earning would be $125 from fifty colonies, if those earnings can be increased on a conservative basis of only $10, take the benefit of the doubt and invest in two more journals at least. The farmer who takes only one agricultural paper, even the very best one, may miss some valuable hints which his more progressive neighbor is availing himself of, and, consequently, will be getting ahead of him in a business way.

THE ADVANTAGE OF SELLING HONEY AROUND HOME; HOW DAN WHITE SELLS HONEY.

BEE-KEEPERS should learn to do more and more of their own marketing. Educate your own community to the wholesomeness and genuineness of both comb and extracted honey. The local bee-keeper may just as as well as not get a reputation for several miles around his vicinity. If he tries peddling he may not be able to sell very much on his first trip; but let him try it again. In time he will become acquainted, and consumers will have confidence in the honey-man. After a time he can get them to send their orders without having to go after them.

W. Z. Hutchinson, in the *Bee-keeper's Review*, points out a case where one extensive bee-keeper, Mr. E. D. Townsend, of Michigan, sold his entire crop of 20,000 lbs. around home at 7½ cts., while other producers who sent their honey to the jobbers got very little over 6 cts., and had to pay freight in addition.

But some bee-keepers are not born salesmen. Well, then, let them call in the service of some one who is, and sell on salary or commission. Go with them and learn how. But better by far go yourself, and let it be known there is a real honey man producing and selling real bees' honey in the vicinity.

But some one says he will "not descend to the tactics of a book agent." You don't need to. Just go around as Dan White of this State does, and tell the good housewives that you are "not selling honey to-day, but *giving it away.*" Of course, the frown will melt into a smile, and the lady will bring a sauce-dish and a spoon. Dip out a good big tablespoonful, and hand out a postal card with your address printed on it, and say to her that, when she wants some of that honey, she may drop you a card, as you will be coming around that way on the next trip to make delivery.

That reminds me that we have a leaflet that tells all about Dan White's way of peddling honey, and we send it out free to all subscribers if they will inclose a one-cent stamp for postage. It is the best scheme of peddling honey that was ever published.

THE ONE GREAT OBSTACLE IN THE ADVANCEMENT OF PRICES ON COMB HONEY.

THERE is one obstacle in the way of advancing prices on honey. What is it? It is the common belief among consumers that comb honey is manufactured. The more fancy and perfect the filling of the sections, the more sure the supposed connoisseur is that it is not bees' honey.

GLEANINGS will admit that it has harped on this matter a good deal, and I suppose a good many of our readers, when they see the first few lines of an editorial of this kind, skip it, and go to something else. The trouble is, the average bee-keeper does not believe that the general public has such an erroneous idea about his business. He has educated *his* local trade, and hence he thinks all the rest of the world is like his locality.

I wish our readers could come in contact with some of the traveling men who come into our office from time to time. I wish some of them would go into the great cities and talk with consumers; then hunt up the traveling salesmen at hotels, and ask them to tell them something about the honey business. If, after their investigation, they are not astonished that there is any demand for honey at all, then I shall be surprised.

In the days before the Wiley comb-honey canard got a start, comb honey was bringing far better prices. As the population has nearly increased with the number of bee-keepers, there is no reason why comb honey should not bring nearly the same figure it formerly did, but for the common impression that comb honey is manufactured, and therefore prospective customers buy something else.

I suspect it would be hard to convince our readers that what I am saying is true; but until we can get those same bee-keepers *to believe it*, and organized into a working force like the Honey-producers League it will be difficult to advance our prices or even to hold our own. This year especially there is a great scarcity of good comb honey. While the market is somewhat firmer, prices have not advanced to a point where they would otherwise have gone if the conditions were different. The Honey-producers' League is doing splendid work in securing corrections and retractions in cook-books, encyclopedias, and newspapers. But until these standard works with their lies and misrepresentations are, years hence, consigned to the garrets or waste-baskets, we shall have bobbing up every now and then a rehash of the old canard. Bee-keepers should see to it that new editions of all these standard works have correct information about bees and honey; and then they should personally follow up every newspaper that slanders their business. Don't wait for the editor of the bee paper to do it. We can not blot out, as they tried to do in Russia, what is already printed; but we can, if we only go at it right, see that new literature with general information to the public is correct so far as it relates to the subject of bees and their products. Then we should have current articles in magazines and papers giving the facts about honey. One of the officers of the League has secured a number of such write-ups. The Honey-producers' League was organized for the very purpose of boosting prices; and the majority of bee-keepers have held back, waiting to see how it would turn out; and a few have withheld their support, believing that the officers were trying to serve some selfish end. In these days, when so much graft is being exposed in high places, it is not much to be wondered that some people should imagine that all the leaders in every department of life have gone wrong. But if the men who are back of the Honey-producers' League were grafters, it would not be very long before they would suffer in a business way that would mean absolute ruination. Until a thing is started it needs business men of experience to push it forward. If Editors York and Hutchinson and Dr. C. C. Miller, for example, can not be trusted, then we are in a bad way indeed. The Honey-producers' League will be needed more in a year when there has been a good crop of honey than when it is scarce. We have had two backward seasons; and, according to the law of averages, next year ought to be a fairly good one.

HOW LATE TO LEAVE BEES OUT BEFORE PUTTING IN THE CELLAR.

THE editor of the *Review* believes it is bad management to leave the bees out for two or three weeks after it has become freezing weather, hoping for one more last flight that may not come. If the colonies are of only moderate strength, I believe he is right; but if they are good strong ones in a climate that will probably give that fly day, I believe I would advise taking the chances. A good deal will depend on locality. In some places there will be no warm flying days after the first freeze sets in. There will be a steady continuous cold until spring comes; and when it does come, the cold weather will be clear out of the way. Here, obviously, better not wait. In other localities, such as we have here, for example, we may have two or three weeks of chilly weather interspersed with hard freezing days and nights, followed finally by three or four days of what we call here Indian summer. When the bees can fly on such days it does them a world of good. The shorter the period we can keep the bees in the cellar in the case of strong colonies, the better.

WINTERING PRATT BABY NUCLEI IN A CELLAR NOT A SUCCESS.

WE tried the experiment of wintering a few Pratt baby nuclei in the cellar on two frames, six to the Langstroth size. Most of them had all died out at the end of three weeks, showing that the cluster was altogether too small for the bees to be able to winter there. One or two baby nuclei of larger size in twin hives, such as are described elsewhere in this issue, are holding their own in nice shape. Here we have a cluster divided by a very thin partition, which is the equivalent of 1½ Langstroth frames all squeezed down to a cube.

MOVING BEES.

REPEATEDLY we are being asked if it would be possible to move bees after cool or cold weather sets in. Most certainly. There is no danger of suffocation, and a whole yard of bees can be picked up and moved without much trouble, either a short or a long distance. I would, however, avoid *very* cold weather, selecting a moderate day when the mercury is above freezing.

DON'T fail to attend the local conventions that may be held in your vicinity; and if possible be sure to attend the big meeting in Chicago, of the National.

Convention Notices.

The New York State Association of Bee-keepers' Societies will hold its annual meeting at Geneva, N. Y., at the Nester Hotel, Tuesday and Wednesday, Dec. 18 and 19. New and interesting subjects are to be introduced and discussed at this meeting, and all bee-keepers of New York should make arrangements to be present. Good and reasonable accommodations have been secured. Headquarters will be at the Nester Hotel.

Romulus, N. Y. C. B. HOWARD, Sec.

A series of bee-keepers' institutes have been arranged to be held in New York State as follows: Amsterdam, Dec. 11th; Syracuse, Dec. 12th; Watertown, Dec. 13th; Fulton, Dec. 14th; Auburn, Dec. 15th; Romulus, Dec. 16th; Geneva, Dec. 18th and 19th. Dr. E. F. Phillips, acting in charge of apiculture, United States Department of Agriculture, will attend and address these institutes on subjects pertaining to bee-keeping.

A bee-keepers' institute will be held in the parlors of the Central Hotel, Market Street, Amsterdam, N. Y., on Monday, Dec. 11, 1905. This meeting will be held under the direction of the Bureau of Farmers' Institutes of New York State Department of Agriculture, by the Fulton and Montgomery Counties Bee-keepers' Societies, assisted by the United States Department of Agriculture. Dr. E. F. Phillips, acting in charge of apiculture, United States Department of Agriculture, will attend and address the meeting. A good attendance is earnestly desired. T. I. DUGDALE, Sec.

West Galway, N. Y., Nov. 18.

On account of the change in the time of holding the National convention in Chicago, the Minnesota Association has decided to hold its annual convention as usual, Dec. 6 and 7, at First Unitarian Church.

Minneapolis, Nov. 18. MRS. W. S. WINGATE, Sec.

Another slight postponement of the National convention seems to be unavoidable. The fat-stock show, upon which we have depended for reduced rates on the railroads, has been postponed two weeks. The reason given is "the inability of the builders of the amphitheater to secure structural steel for the same," and they don't wish to hold the show out of doors, hence the delay. Of course there will be no excursion rates during the first week in December; and as it would be suicidal to attempt to hold a convention without excursion rates the Executive Committee has decided to postpone the convention two weeks in order to take advantage of the stock-show rates. The dates for the convention will now be December 19, 20, and 21.

The place of meeting has also been changed to Brunt Hall, in the Bush Temple of Music, corner of Clark and Chicago Aves. This was done because it was feared that the accommodations at the Revere House might prove too limited. The Chicago bee-keepers, with their customary enterprise and liberality, will pay for the use of the hall. It is only five minutes' walk north from the Revere House, which will be headquarters for the members. This new place of meeting is in a new building where everything is modern. There are adjoining committee-rooms, toilet-rooms, good drinking water, and elevator service, both day and night.

W. Z. HUTCHINSON, Secretary.

PROGRAM FOR THE NATIONAL CONVENTION.

The National Bee-keepers' Association will hold its annual convention at the Bush Temple of Music, corner of Clark and Chicago Aves. during the fat-stock show, when exceedingly low rates may be secured on the railroads. The dates for the meeting are Dec. 19, 20, and 21. The program is as follows:

FIRST DAY.

Evening session, 7:30.—"Wax-rendering Methods and Their Faults," O. L. Hershiser, Buffalo, N. Y.; "Can the Tariff on Comb Honey be Tinkered to the Advantage of the U. S. Bee-keeper?" by Hildreth & Segelken, New York.

SECOND DAY.

Morning session, 9:30.—"How many Bees shall a Man Keep?" by E. D. Townsend, Remus, Mich.; "Short Cuts in Bee-keeping," by M. A. Gill, Longmont, Colo.; "Producing Comb Honey and Extracted Honey on the same Colony," by Jas. A. Green, Grand Junction, Colo.; question-box.

Afternoon session, 2:00.—"The Control of Increase," by L. Stachelhausen, Converse, Texas; "Migratory Bee-keeping," by R. F. Holtermann, Brantford, Can.; The Dietic and Hygenic Relations of Honey, by Dr. Eaton; question-box.

Evening session, 7:30.—"Contagious Diseases among Bees, and how to Distinguish Them," by Dr. Wm. R. Howard, Ft. Worth, Texas; "Experimental Apiculture," by Dr. E. F. Phillips, Washington, D. C.

THIRD DAY.

Morning session, 9:30.—"The Honey-producers' League—Can it Help Bee-keepers?" by R. L. Taylor, Lapeer, Mich.; "The Business End of Bee-keeping," by N. E. France, Platteville, Wis.; "Successful Experience in the Making of Honey Vinegar," by H. M. Arnd, Chicago, Ill.; question-box.

Afternoon session, 2:00.—"In what Way can Bee-keepers Secure Their Supplies at Lower Prices?" by W. H. Putnam, River Falls, Wis.; "How the Producer and Dealer may Advance their Mutual Interests," by Fred W. Muth, Cincinnati, Ohio; question-box.

Evening session, 7:30.—"What have We to Hope for from the Non-swarming Hive?" by L. A. Aspinwall, Jackson, Mich.; "Poultry-keeping for the Bee-keeper," by E. T. Abbott, St. Joseph, Mo.

W. Z. HUTCHINSON, Sec.

GENERAL
CORRESPONDENCE.

THE EDUCATIONAL VALUE OF BEE CULTURE.

Reasons Why it is such a Valuable Study.

BY R. B. M'CAIN.

Fads and fashions are not unknown to the educational world of to-day; and, while we may not approve of some of the fads which have been introduced, we can see a steady progress toward more reasonable and practical methods of mental development. One of the good signs of the times is the introduction of nature study in the common schools. One would devoutly wish that this may not prove a "fad," but that it may be developed sanely and along practical lines in order that the graduates of these schools may have at least a passing acquaintance with the many and varied forms of life which abound all about them in both the vegetable and animal kingdoms.

The suggestion that the study of nature be made practical does not necessarily carry with it the thought of making money, but, rather, the idea of turning the commonplace things of life into educational values.

It would be hard to find a more delightful subject for study than the honey-bee. As an introduction to the great subject of nature study, no other form of life seems so well adapted. The bee is not only a most marvelous piece of creation as to its physical structure, in which it shows its wonderful adaptation for the work it has to perform, but it is the living link between the members of many families of the vegetable kingdom, and becomes the active agent in cross-fertilization in the perpetuation of their species. It will thus be seen that one can not progress far in the study of this little insect without discovering one of nature's most mysterious processes.

HONEY-BEE PRESENTS A HIGH FORM OF LIFE.

It is true that the honey-bee is but one of many thousands of the great insect family, any one of which might be profitably studied, and yet there are many reasons why the honey-bee can be studied more profitably as an educational discipline than any other form of insect life. One of the chief of these reasons is that it presents such a high form of life. It would be hard to find any thing more interesting than the little realm bounded by the walls of the bee-hive. When we enter that domain, or, better, observe it through a glass wall, it is to find a most orderly and perfectly regulated commonwealth. Its thousands of inhabitants labor in perfect unity and harmony. The beauty of all the waxen structures, the energy and the industry of the little toilers, together with the deliciousness of the finished product of their labor, unite to make the study peculiarly fascinating; and the deeper we penetrate, the more wonderful and the more fascinating the study becomes.

INTIMATE ASSOCIATION BETWEEN MAN AND THE HONEY-BEE.

Another reason why the study of the honey-bee is eminently fitted as an educational aid is that there is such close and intimate association between man, the highest form of life in the family to which he belongs, and the honey-bee, the most perfect of its kind. There can be little doubt that the honey-bee was divinely destined to minister to the needs of man and to supply the very necessary means of adding to health, happiness, and long life. Honey is one of the most perfect foods in existence; as a confection it can not be equaled by the art of man; and the fact that its use prolongs life is attested by so many witnesses that one would hardly dare to doubt the statement.

BEE CULTURE A GREAT INDUSTRY.

A very practical reason for believing that the honey-bee was destined for man's oversight and use is found in the results of modern scientific bee culture. The stock of the honey-bee has been wonderfully improved by man's management in the application of the principles of scientific bee culture. This improvement manifests itself in the production of bees which are better adapted to particular localities, also for particular kinds of work. The quantity as well as the quality of honey has been affected by the improvement in the stock. The disposition of the race may be and has been improved in many cases, so that, because of gentleness, work with some stock is attended with far less danger from stings than with others. The point at which improvement seems most evident is the "soul of the colony," the queen. Color, prolificness, length of life, have all been the object of man's attention in the effort to improve the stock, and at all these points he has been, in a measure, successful.

NATURE STUDY VALUABLE AS A MIND-TRAINER.

This much has been said to hint at the possibilities of bee culture as an introduction to the great subject of nature study. But when one remembers the prime object of any study in a prescribed course—that of training the mind to think and the eye to observe — it at once appears plain and practical that nature study is second to none in usefulness. We do not need to disparage other mental exercises in order to magnify nature study as a means to this end. But if nature study is to be employed (and that seems pretty well recognized now as a settled question) why not the study of nature at the point of the *useful* and the *practical?* It has taken us a long time to outgrow the habit of observing the unusual, the monstrous. Our attention is attracted by specimens of other ages and places, when, as a matter of fact, we ought to be trained to observe what is most ordinary and commonplace about us, and to see the beauty and utility of things near at hand. And it is doubtless a fact that it requires a higher order of mental operation to center the attention and observe correctly with reference to commonplace things than it does in cases where curiosity is aroused by some peculiarity or strangeness of the object observed. Perhaps this will explain why the majority of people who live in a settled civilized country could tell better how wild beasts are kept and treated in captivity than they could tell how to keep and treat a horse or a cow in their neighbor's barn. It is this that makes every one remember that a bee stings. It has become such a fixed notion in the minds of the majority of people that the honey-bee stings that one would think, from the way many people talk, that the chief business in life for the bee is to sting; whereas the one who has worked with them long will tell you that, while the greater number of the bees in a colony can and will sting, as a matter of fact very few of them ever sting at all, and those few sting only under great provocation.

The universal fear of the honey-bee has come about because of an ignorance of the simplest and most apparent principles of bee culture. The direct cause of this fear is the sting of the bee; but the sting was inflicted because of the ignorance of the intruder, which brings about a reversal of the time-worn saying, "ignorance is bliss."

THE EXTENT OF THE STUDY.

But one other thought presses for recognition in this connection, and that is the fact that the employment of bee culture as an educational factor will greatly enlarge the mental horizon of the student. Few of us begin to realize the magnitude of the forces in operation about us in the material world, and fewer still know any thing about the means by which the marvelous results of nature's processes are accomplished. Only a very few favored ones can have the means of penetrating the depths of the heavens to explore them, or to add to the sum of human knowledge along the lines of the great applied sciences; but any one with an eye to see, and a mind to grasp and use the results of correct observation, may walk afield and find the world a great hive of industry in which the myriad forms of insect life are working out world processes. It is coming to be more and more essential to know about these little creatures. Some of them are enemies of the human race; but the most of them, perhaps, serve some beneficial end as regards man's welfare. At the head of the list of the friends of man among the insects stands the honey-bee. An acquaintance with it will inspire confidence, and will lead to larger attainments.

Coal City, Ill.

AMOUNT OF HONEY PER COLONY.

What can we Reasonably Expect to Obtain when we Give our Bees the Best of Care?

BY E. W. ALEXANDER.

This is a question which we are often asked by those who know but little about bees, and I sometimes think it might be a good question for each one of us to ask ourselves, and then do a little thinking along this line. For some time I have been thinking this matter over, and I have come to the conclusion that I never gave my bees what might be called the best of care, neither have I ever seen a man who did. Now, why is this? Simply because we have got the idea into our heads that we must have a great number of colonies in order to make a little money. Now, this is a big mistake, and the sooner we realize it the better.

Let us apply the same management to bee-keeping that we see put into practice by all the successful business men of the country. They make the most out of every thing connected with their business that they possibly can. Is it so with us? I don't think it is. There are but very few who give their bees extra care, consequently their surplus is small per colony, and they may become discouraged. Now let us look this matter over and see if we can not do much better in the future with fewer colonies than many of us are now doing with several hundred; and, by way of explaining this matter, I will suppose that, on April 15, you have 100 fairly good colonies that were just taken from their winter quarters, and that each colony contains a good well-developed Italian queen not over ten months old that has been reared from some good honey-gathering strain of bees. I shall take it for granted that your hives are filled with nice worker combs.

We will commence the season's work by putting a feeder under every hive and giving each colony about 1½ cents' worth of extracted honey, or sugar syrup, which must be made very thin, of about the consistency of nectar, and feed them about this amount every day that the weather is such they can not gather any thing from flowers until about the last of May. This will require on an average, one season with another, about 50 cents' worth of honey or sugar per colony; and, if properly done, you will have, May 25, every hive crowded with brood and maturing bees at the rate of 2000 or more a day.

About two weeks previous to this we should start the rearing of four or five hundred queen-cells, which are now, May 26, about ready to hatch. Now we will divide our 100 colonies, making two of each, and fix them so that the queenless part will mature two or more of these ripe queen-cells or virgins into nice laying queens; then about the last of June we will separate these colonies that have two or more laying queens, making 100 more increase, or 300 colonies all together.

The old colony, or the part that has had the old laying queen from the first, we have kept busy drawing out frames of foundation into nice extracting-combs, and we have also kept them from any desire to swarm by taking their combs of capped brood away as fast as they had some to spare, and giving this brood to this newly made increase.

In this way of managing your bees you have no swarming to bother with, and at the same time you have increased your 100 colonies to 300, and all are in good condition for any harvest that commences after July 4.

Now, what I consider a fairly good location (and no man ever ought to bother trying to produce honey in a poor location) will furnish a surplus of three or four pounds of extracted honey per day for as much as 35 days during July and August. This will give us about 100 lbs. per colony, or a total surplus of 30,000 lbs. from our 100 colonies, which we started with in the spring. This, at the wholesale price of 6 cents per lb., brings us $1800. Then we have 200 colonies of an increase, worth about five dollars apiece, which gives us $1000 more, or a total income of $2800 from our 100 colonies we started with in the spring. Now we will deduct the necessary expenses.

First, $50 for the honey or sugar we fed them to stimulate early breeding; and there, my friends, is the key that unlocks all the rest. Then we have $400 for the expense of new hives filled with foundation for our 200 increase; then the matter of hired help will cost about $125, and the necessary barrels to ship your honey in will cost nearly $100 more, making a total expense of about $675. This, subtracted from your income, leaves a net balance of $2125 — a very nice income for less than six months' labor which is not very hard at any time.

Now, don't say that this is overdrawn, and borders on the visionary, for I know it is not. I have several times taken a few colonies in the spring and given them special care as I advise in the above, and in every case they have done still better than this. No, my friends, there is nothing in the above that is overdrawn.

The trouble with us all is, we try to keep too many colonies, and in doing so we do not give them the care they ought to have.

Some time before spring I will take up this subject again and explain to you how to have surplus laying queens on hand to use in making this large increase, for I intend to prove that this nice income can be made from the 100 colonies without buying any queens to help it along. The man who requires 500 colonies to give him an income of $1000 a year is not half as good a bee-keeper as the man who will make that amount or more from 200 colonies.

Study your business so as to keep fewer bees and better bees, and make more money; also have less idle capital invested; and I know you will have less to worry about than if you continue as many as you are doing. I repeat, study your business until you understand it well, for I assure you that ignorance of any thing connected with our business is far more costly than all the bee-books and journals we now have.

Think this subject over well this winter; and when another season comes, have all your plans well laid on a good foundation, the cornerstone of which must be strong colonies early in the season; and the only way I know of to secure these is to stimulate early breeding by early feeding; then all the rest is easy enough. Don't think for a moment that I advocate taking any steps backward — far from it. I like to see men push ahead in their business, and make it a success, whether it be with 100 colonies or 1000; but in doing so, do as our successful business men do—look well to the amount of capital you have invested; look close to your annual income, and then, with a critic's eye, look to the net profits of your whole business.

Delanson, N. Y.

[While we must admit that Mr. Alexander has a splendid locality, yet a careful reading of this article shows that he has not lost sight of the importance of the right methods at the right time to get all that is possible out of that locality. Judicious feeding at the right time to get a strong working force of bees is, I believe, a very important factor in his success.

But when Mr. Alexander tells us that what he would consider a "fairly good location" is one that will furnish three or four pounds of extracted honey per colony every day for over a month, he almost takes our breath away. The most of us would consider such a locality an extraordinarily good one. Very possibly Mr. Alexander's methods would make an ordinary one or two pound surplus per day swell up to four or five.

At all events, this is an article that will bear very careful reading, as it is preliminary to some other very valuable and interesting matter from the same writer. He speaks not from the standpoint of theory or guess, but from actual experience with actual results in crops of honey that run away up into the carloads. Such a man commands not only our respect but the most careful study of his methods, especially when he is perfectly willing to give all the secrets of his success.

There may be something in making a good locality out of a poor one; and if that is true, then it is very important for us to know *how* that may be done.—Ed.]

PROTECTION FOR SUPERS.

The Value of Protection; Why Supers Should be Kept Warm.

BY S. SIMMINS.

If I understand Dr. Miller, he considers that protection can make no difference to the actual weight of honey *collected*. In my opinion it is the one thing that makes a mountain of difference. I think I can presently convince him he is standing on unsafe ground, and that he is from thirty to fifty per cent poorer in his annual yield of honey than he need be while he stays just there.

One of the reasons why so much more extracted honey can be secured, is, as we all know, because the bees can be provided with so much storage space in the shape of drawn combs in advance of their requirements. Then how can the owner expect his bees to go and do likewise when, in regions that have cool nights, he checks the comb-building instinct for several hours out of every twenty-four? Consequently his willing workers can put in only half time; and, when warmed up again next day, a large army of workers restart—yes, let it be repeated, restart wax-working, only to do what should be and would have been done through the night, ready for the early morning gathering.

I may still be asked, "What difference will this make to the ultimate yield?" It is just this, as I am aware very many have long since found out, that, not having the new surplus combs sufficiently in advance of the rush of honey, much of it is stored below, thus crowding down the queen. This process is a sadly progressive one (in a backward direction) if once allowed to make headway. Not only will the bees remove some of the brood, but, as a natural consequence, the incoming pollen, being little in request, becomes an accumulating plague, still further restricting the queen's powers. We now begin to see a stationary if not a declining population, which is a great calamity when occurring long before the end of the season.

This means just an ordinary surplus; whereas an open brood-nest, with nearly all the incoming honey going upstairs where cells are always ready for it, shows a constantly increasing population, and a yield so much greater, even to the extent of one hundred per cent, where judicions protection is given to the supers. When the bees once start comb-building, nothing should, if possible, be allowed to check them for a single half-hour. If bee-men would only stop to consider they would find they are losing yearly more than the value of those thin-cased supers—better by far pay a little more in the first place for double-sided supers for comb honey, and these again sheltered by an outer case, as shown on pages 149 and 155 of "A Modern Bee Farm." It is a question whether manufacturers are to blame for offering the cheaper thin cases or the purchasers for insisting upon having a cheap but certainly not economical super. Our little friends are strict economists, and, with the least reduction of temperature, they are prepared to "strike" work, or to cease comb-building the moment they see nothing "in touch" to reward them for their labor.

In this country we have a great number of amateur bee-keepers with a few hives. Many of these people just put the hives down in the garden; in due time they put on a rack of sections, and often at the end of the season seem surprised the bees have stored but little if any honey above. The reason is simple. The super is put on, whether the bees are crowded or not—more often not — and, with insufficient covering above, the bees crowd the stock combs with honey and masses of pollen, so that there are never sufficient bees to boil over into two or three tiers of supers.

I have seen many such instances, where there has been no management; and not always is it among amateurs that the real secret of honey-production is little understood. Consequently I have endeavored to fix a honey-barometer to meet the case, working something in this way: Allow your stock combs to become sealed one-third of the way down with honey, and the loss is 25 lbs. of surplus; when sealed one-half, then you lose 50 lbs.; and if three-fourths of the brood-combs are thus choked with stores, then undoubtedly there is a loss of 100 lbs.; i. e., over and above an ordinary surplus yield. The whole thing centers upon a proportionate depreciation of population; the loss of life from actual working, and other causes, is enormous during the busy season; and therefore requires constant renewal.

[Mr. Simmins strikes on a very important subject — one which I hope will be very thoroughly discussed between now and the time when we shall be in condition to test the value of protection as advocated. We shall be glad to hear from a number of our subscribers who may have been in a position to test the difference between no protection, *i. e.*, that afforded only by the single-walled hive, and plenty of protection with double walls.—Ed.]

A HISTORY OF A DRONE-LAYING QUEEN.

Can Such a Queen, by Feeding Extracted Honey, be Made Over into a Good Queen?

BY WM. M. WHITNEY.

Some time ago I promised to tell you something about that queen I got of you, so here it is. In June, 1903, when she was received I made a colony by division and introduced her on two frames of brood and bees — the rest, frames of foundation. The colony built up strong for winter, though the latter part of the season was not favorable. June 24, the following year, division was made by removing the queen and three frames of brood. The season was very unfavorable, yet the colony built up strong, but I was obliged to feed for winter stores. I fed granulated-sugar syrup. Last spring I found the colony weak, the queen looking slim and poorly nourished; in fact, she was "spring poor."

A large proportion of the worker-cells used contained drone brood, and, of course, I naturally concluded that the queen had passed her days of usefulness; but, disliking to supersede her if I could avoid it (as I wished to secure more of her stock) I commenced feeding the colony sparingly, each night, good extracted honey. In the course of ten days there was a marked improvement in the appearance of the queen. She assumed the bright orange color, and looked as fresh and plump as the year before; and in a short time the drone brood disappeared from the worker-cells entirely, and soon seven frames of a nine-frame hive were largely filled with worker brood. On the 20th of June she was again removed to an observatory hive in which I wished to exhibit her at our midsummer fair. By the way, I took a first prize. On the 27th I made four nuclei from the frames left with their queen-cells, which are now strong colonies.

After the fair I removed her with her bees to an ordinary nine-frame hive with double walls, which she with a fairly populous colony now occupies; but I notice that she has begun drone-egg laying in worker-cells again, which indicates the end of her days. I expect to transfer the pet colony which I have kept in my room all summer to the second story of this hive, leaving the old queen in the first while she lives. She has given me most excellent service; yet I've not made the most of it so far as increasing her stock is concerned, as she has been treated (until this season) like any other queen in the yard. Her bees have been very gentle, beautiful, and great hustlers.

But the thing I wished to call attention to particularly in this article is the fact that careful feeding in the spring with good honey, instead of sugar syrup, produced such wonderful results by changing a drone-laying queen to as good a worker queen as there was in the yard. Take notice, there was plenty of capped sugar-syrup stores in the hive when I began feeding. Now, it may be that, if sugar syrup could be taken by the bees as nectar is, and retained long enough to become converted into grape sugar before being deposited in the comb, it might be as good food for bees to winter on as honey; but when taken in the hive, as is the case in feeding, and being immediately deposited in the comb, I do not believe it compares with honey produced in the ordinary way, for feeding bees. I believe that extracted honey at $7.00 a hundred is cheaper to feed than the best granulated sugar at $6.00 a hundred, which is less than I can buy it at any of the groceries in this place at the present time.

Again, why does careful feeding cause a drone-laying queen, apparently sterile, to become one of the best worker-laying queens? I have a theory regarding the cause of this change, but want to hear from some of the *big* fellows on this matter. The result was so wonderful to me that it seemed to open up the question of the cause of the production of drones and workers.

DO BEES IN FLIGHT NOTICE NOISES?

There is another matter which I wish to mention, that appeared as startling to me when I discovered it. A few days ago I set about cleaning up some odds and ends in the honey-house; in doing so I extracted honey from partly filled sections. The extractor stands near the door in one corner, a screen door opening inward, and an outside door opening outward—the last at this time standing ajar. Bees were flying in front of the screen, seeking an entrance into the house. The wooden handle on the crank of the separator is loose, and, when rapid motion is obtained, it makes a shrill screeching sound. When this noise was produced, the majority of the bees backed up and lit on the outside door. As the extractor slowed up and the noise ceased, the buzzing in front of the screen commenced again. This experiment was repeated several times with the same result. Will some one explain this phenomenon? May it not be that the present advance bee-keepers are a little "previous" in laughing at those who have been in the habit of blowing horns, ringing bells, and drumming on tin pans to cause swarming bees to cluster? May it not be that there are certain lengths of sound-waves which have a marked effect upon the auditory nerves of bees, that others do not? I think it a recognized scientific fact that certain lengths of waves are recognized by some forms of hearing organs, but not by others. Will some entomologist or physiologist, or anybody else who knows any thing about such matters, tell us what he thinks about it?

Lake Geneva, Wis., Oct. 21.

THE GOVERNMENT DISTRIBUTION OF QUEENS.

Conditions under which such Queens may be Obtained.

United States Department of Agriculture,
Bureau of Apiculture,
Washington, D. C.

Dear Mr. Root:—I inclose a circular letter which outlines a plan of distribution which is to be followed by the Bureau of Entomology in the future. If you wish to do so, you are at liberty to publish it in your journal, as it may be of interest to some of your readers. E. F. Phillips,
Acting in Charge of Apiculture.

[The circular in question is as follows:]

It has been customary in the past for the Bureau of Entomology to distribute a limited number of queen-bees of the more rare varieties to bee-keepers. This distribution is not intended to be general, since that would be impossible; and, to prevent misunderstanding, the following method, to be used in all future distributions, is announced:

It is desired that some of the less common varieties which have proven so good may become more widely known among the bee-keepers of the country, to take the place, in as far as possible, of the common black bees and of certain strains of Italian bees which seem to have deteriorated.

Carniolan bees are very prolific, and are, at the same time, gentle; and there are records to show that as honey-producers they are excellent. The recently introduced Caucasian bees, which have attracted considerable attention, are the most gentle bees known at the present time; and records of honey production now coming in indicate that they are excellent. The Cyprian race, which has been criticised on account of its temper, ranks second to none in honey production.

Of these races, the Carniolans are sold in this country to some extent, and the Cyprians in less numbers. So far no queen-breeder has offered Caucasian queens for sale, and there is, without doubt, an opportunity for a wide sale of these queens, as is evidenced by the requests which come to the Bureau of Entomology.

The Bureau can do more toward the wider introduction of these races by inducing reliable men to take up rearing of pure-bred queens than by a more general distribution. It is not the purpose merely to give away queens, and the future distributions will be limited as follows:

To any experienced queen-breeder who will guarantee to rear queens, and mate them purely in considerable numbers for general sale, the Bureau will send, as far as the supply will allow, one high-grade breeding-queen, purely mated and carefully tested. In addition, several queens whose matings are not known will be sent for drone production, since drones are not affected by the mating; all queens, however, will be from good stock, the number to depend on the supply on hand. The breeder making the request must give evidence of his ability to rear good queens; must agree to offer at least two hundred pure-bred queens a year for sale to the general public, and must not ask for them an exorbitant price. It is the opinion of the Department that twenty per cent more than the current price for Italian queens would be fair. It will also be expected that in future years the breeders will do their utmost toward the improvement in honey production, at the same time maintaining the purity of the races. The Bureau will be glad to aid breeders of this class to its utmost ability, but will not aid in any way a breeder who offers for sale or sells crossed hybrids of the various races, except in the case of untested queens, and even in that case every possible effort should be made to get pure matings.

After this distribution, all inquiries to the Bureau will be answered by giving a list of reliable breeders, including those who have received stock from the Government apiary; and the name of any breeder who knowingly sends out inferior stock will be dropped. It is not the purpose to interfere with the private business of the persons receiving these queens; but these precautions are taken to protect the bee-keepers of the country.

No applications for queens under other circumstances will be considered. All applications will be considered in the order of their receipt.

L. O. HOWARD,
Entomologist.
JAMES WILSON, *Sec. of Agriculture.*

BEE-KEEPING IN NEVADA.

The Alfalfa Question, and the Trouble with the Cattle-men; the Law on Adulteration in California.

BY TRANSIENT.

The honey-flow here in the Humboldt meadows has been a long and very slow one, and is now about ended. The crop has been about half of what we expect in a fairly good season.

The agitation of the question between the cattle-men and the apiarist, whether bees do injure the alfalfa hay or not, still goes on. Attempts were made at the last session of the legislature to pass a law compelling every bee-man to own one hundred and sixty acres of improved farming land or cease handling bees. It did not leave the committee room however. It will be brought up again at the next session, when they tell us "something will be doing."

The weather in this great valley has been marvelously fine this summer, and has aided the bee in struggling for what little it has obtained for us in the shape of nectar.

The grasshoppers have been the cause of our loss of half a crop this season. They have been with us for the past three seasons, but do not seem to multiply as in other regions or we should be eaten up this year.

One carload of white alfalfa honey went forward last week to England, and was the product of our principal apiarists, the Tyler Bros.

The honey crop here this season will not exceed, probably, seven carloads.

The problem of wintering the bees has not been solved here yet. Fully a third of our bees were lost in wintering the past mild winter. It is probably the hardest spot on the earth to winter safely one's bees, but the problem may yet be solved.

The grasshopper, the heat, the high winds, the animosity of the cattle-men, and the excessive freight rates, both east and west, prevent this broad valley from being a bee-man's paradise.

Foul brood has got its grip on many of our apiaries. Some have been wiped out, while others are in such bad shape that the owners are disconsolate.

Our bee society organized and met once. It seems to have fallen into a deep sleep.

Can not some one competent to handle the question scientifically, as well as from a practical point (Prof. Cook, for instance), write us an article for GLEANINGS, showing that the bee in its work of gathering nectar from alfalfa does not in any way deprive the mown hay of any of its weight or of its saccharine matter? We can then have said article copied in our local papers, where it will educate the hay-producer, and in the end benefit or perhaps save the bee-man.

The cattle-men, with their thousands of head of cattle to fatten each season, say to Mr. Farmer, "We can not longer pay you your price for your alfalfa hay, as it is not as sweet and fattening as it was in former years when no bees were here to draw from it its saccharine qualities." The farmer naturally is influenced as it reaches his pocket and deprives him of a revenue, his only one here, as every thing is alfalfa-raising; hence the feeling, an honest one, against the bee-man, and adverse legislation is certain to follow.

I am very much interested in the fight against honey adulteration here in the West, and am sending to you a copy of the law on the adulteration of our product. I hope you may use it to our benefit.

LAW IN CALIFORNIA WITH REFERENCE TO THE ADULTERATION OF HONEY.

The following act applies especially to the adulteration of honey in the State of California. It is an act passed and approved on the twenty-third of February, 1897, and will be found in the Statutes of 1897, commencing on page 12, also in the late Penal Code, published in 1903 by Bancroft-Whitney Co., of San Francisco, on pages 559 and 560, and is as follows:

An act to prohibit the adulteration of honey, and to provide a punishment therefor.
(Approved February 23, 1897. Stats. 1897, p. 12.)

SECTION 1.—No person shall, within this State manufacture for sale, offer for sale, or sell any extracted honey which is adulterated by the admixture therewith of either refined or commercial glucose, or any other substance or substances, article or articles which may in any manner affect the purity of the honey.

SECTION 2.—Every person manufacturing, exposing, or offering for sale or delivering to a purchaser any extracted honey shall furnish to any person interested, or demanding the same, who shall apply to him for the purpose, and tender him the value of the same, a sample sufficient for the analysis of any such extracted honey which is in his possession.

SECTION 3.—For the purposes of this act, "extracted honey" is the transformed nectar of flowers, which nectar is gathered by the bee from natural sources, and is extracted from the comb after it has been stored by the bee.

SECTION 4.—Whoever violates any of the provisions of this act is guilty of a misdemeanor; and, upon conviction thereof, shall be fined not less than twenty-five nor more than four hundred dollars, or imprisoned in the county jail not less than twenty-five days nor more than six months, or both such fine and imprisonment. And any person found guilty of manufacturing, offering for sale, or selling any adulterated honey under the provisions of this act may, in the discretion of the court, be adjudged to pay, in additton to the penalties hereinbefore provided for, all necessary cost and expenses, not to exceed fifty dollars, incurred in analyzing such adulterated honey of which such person may have been found guilty of manufacturing, selling, or offering for sale.

SECTION 5.—This act shall be in force and take effect from and after its passage.

In addition to the foregoing, there is in the Penal Code one section which applies generally to the adulteration of foods, drugs, medicines, liquors, etc., and which can be found in the Penal Code hereinbefore referred to, on page 159, or in the Statutes of 1903 on page 351, and which is as follows:

SEC. 382.—Adulterating food, drugs, liquors, etc. Every person who adulterates or dilutes any article of food, drink, drug, medicine, spirituous or malt liquor, or wine, or any article useful in compounding them, with the fraudulent intent to offer the same, or cause or permit it to be offered for sale as unadulterated or undiluted; and every person who fraudulently sells, or keeps or offers for sale the same as unadulterated or undiluted, or who, in response to an inquiry for any article of food, drink, drug, medicine, spirituous or malt liquor, or wine, sells or offers for sale a different article, or an article of a different character or manufacture, without first informing such purchaser of such difference, is guilty of a misdemeanor; provided that no retail dealer shall be convicted under the provisions of this section if he shall prove a written guaranty of purity obtained from the person from whom he purchased such adulterated or diluted goods. Enacted February 14, 1872. Amended 1903, 351.

[The conditions reported by our correspondent are very unfortunate, and the bee-keepers in all that section of country should make sure that no ignorant prejudice shall result in legislation unfavorable to their interests. The idea that the bees suck some of the strength out of the alfalfa plant, so that the hay from it is not as sweet as it otherwise would be, is utterly ridiculous, and only shows the length to which ignorant prejudice will go. It strikes me, first, that the bee-keepers' association that is now "sleeping" should be awakened out of its slumbers. It may take a big jolt to do it, but something ought to be done, and that very speedily. Let that organization see that suitable printed matter is put in the hands of the ignorant and prejudiced. Furthermore the organization could get the opinion of scientific men and experiment stations everywhere that would refute utterly such nonsense. GLEANINGS will be glad to publish any thing that may be offered, and we hereby call on our scientific friends and our experiment stations to give us the truth, let it cut where it may.—ED.]

FACTS ABOUT BABY NUCLEI.

Their Use Means Economy in Bees; Queens Fertilized at the Rate of One in from Four to Seven Days.

BY E. G. PHILLIPS.

In the bee-keeping world, as in every other department, there are two classes of men — those who possess a go-ahead spirit, and who are willing to probe thoroughly every new idea that is suggested, to improve on it if possible, and to adopt or reject it according to the results obtained. Opposed to our enterprising brethren are those who seem rather intolerant of innovation and change, and who are not only satisfied with what knowledge and implements they happen to possess, but regard all new methods as new-fangled ideas, and those who adopt them as veritable cranks. This seems especially the way that baby nuclei and their owners are regarded. At first they were ruthlessly condemned by many, and declared by some incapable of producing queens at all; and when they were found capable of accomplishing the desired results the queens were sarcastically spoken of as box queens, which were destined to be short-lived, poor layers, etc. As the contrary has been demonstrated by most of our leading bee-keepers, who have found the queens as good in every respect as those fertilized from full colonies, I deem it unnecessary to say more on this point.

One of the chief advantages to be gained by using baby nuclei in preference to larger nuclei is the economy in bees. The greatest demand for queens occurs in the early spring, at just the time when it is hardest to supply them. The colonies come out of their winter quarters in a weakened condition, and can ill afford to be robbed of bees for making nuclei, especially if we hope to be benefited by the early fruit bloom. To take a two-frame nucleus from a colony at this juncture means robbing them of about a third of their original strength; while taking a baby nucleus and about two or three hundred bees hardly affects them at all. The other points at which they score — saving in hives, combs, time, etc., and the ability of the bees to protect the small combs from insect enemies — have already been discussed, and ought to be so obvious to all as not to demand exhaustive discussion here.

It is my intention, in the rest of this, to discuss only such facts as might be found useful to any who have tried or who are mindful of trying baby nuclei.

The process of making baby nuclei is very simple. Have your boxes fitted out with one *light* frame of honey; the other of unsealed brood and a caged virgin. From three to five nuclei may be taken from an ordinarily strong colony without seriously affecting its strength. The nuclei should be made sufficiently strong at first to allow for the loss of bees in confining. This loss may, however, be greatly minimized by having the boxes well ventilated, and keeping them in a cool place while in confinement. If your intention be to keep them in the same yard in which they are made, they should be confined for at least three days; if at another locality, not less than a mile away, from 36 to 48 hours will be long enough. In both cases they should be released at dark, the entrances being turned in opposite directions. While in confinement the boxes must not be placed close together; for if they are, the bees will become acquainted in some way of which we are not quite certain. It may be that they acquire the same body odor, or, having been made from the same colony, they retain their old acquaintanceship, and will be almost sure to unite if released the ordinary distances apart. There will also be an aptitude on the part of the virgins, if they fly soon after they are released, to mistake their hives.

The bees used for this purpose should be selected from the gentlest strains, as not only will cross bees necessitate the use of smoke, and so incite balling, but in many cases they won't accept virgins.

The spot selected for keeping nuclei should be one that affords warmth and shade at the same time. It must be always borne in mind that baby nuclei are just what the name insinuates — they are babies, and should be given all the care and attention conducive to the well-being of babies.

The virgins will not mistake their hives, because they look so much alike. Close observations have satisfied me that no fear need be entertained along this line.

A larger nucleus, say one-third of a Langstroth frame, might give better results in cold climates; but after careful attention to about 200 of the small ones all summer I have concluded that they make very efficient substitutes for the old two-frame nuclei. Under normal circumstances, working these on the dual plan, they averaged a queen in about seven days. In fair warm weather the average of the very strong ones was one queen in from four to five days.

Granville, O., Nov. 8.

[In most localities a nucleus frame one-third the size of a regular Langstroth will give better results I think. See article which I had prepared before reading yours, which follows. — ED.]

THE PRATT NUCLEI.

How they were Actually Used in the A. I. Root Co.'s Queen-rearing Yards Last Season; their Good and Bad Features.

BY E. R. ROOT.

During the height of the queen-rearing season we had nearly 200 Pratt baby nuclei in actual use. The foreman of our yard thought we ought to have as many as 500; but I objected somewhat, saying I would rather rear some of our queens in full-sized Langstroth-frame nuclei at a greater expense for bees and hives than to put into actual use so many boxes of bees. The final wind-up of the season has justified the wisdom of my decision—not that the baby nuclei were a failure—far from that—but because during the season we have learned how they can be improved. One of the faults that we had to find with them was that they had to be repeopled with bees too often. At most there would not be more than 200 in them at a time. Some of them would die off, and many of them would go into large queen-cages; with the result that there would soon be dry combs, no brood, and no bees. It is not true, as was confidently predicted, that they would continually swarm out, though they did do this to a very limited extent, but not enough to cause any trouble. Sometimes we put into an export cage something like 40 bees. If there were 200 bees in the first place, the number would be cut down over a fourth. After we had had three or four queens mated and caged out of the same set of bees, there would not be many left; indeed, we have time and again taken out the very last bee to fill the queen-cage along with the queen just mated.

Aside from the fuss of renewing these little boxes of bees every so often, we struck on another difficulty that was not quite to our liking; namely, that, after a queen was mated, the small area of comb available for her would make her very uneasy. She might fly out, and with her the bees. We therefore found it necessary to take out the queen the very day she began laying. But this is not all. No brood would mature under these little frames, showing that 200 bees were not sufficient to keep up the body heat.

Aside from these objections these little mating-boxes were an unqualified success.

We present a view showing one of our baby-nucleus mating-yards out in the open. The boxes are put up on little wooden crosses secured to the same by means of staples hooked over on nailheads, *a la* Pratt. Through the top of the mating-box is a hole just large enough to admit a circular queen-cage or a little feed-bottle with a slot in the cork. The purpose of these little bottle feeders was to give these little clusters a small amount of feed—just enough to tide them over the dearth of honey.

Those who are at all familiar with the Pratt system will remember that six of those little brood-frames are fitted inside of a Langstroth standard frame. A set of these large frames so filled are put into a standard hive with a good force of bees and a queen. As soon as they are filled with capped honey and brood in all stages, the miniature frames are pushed out of the large ones with adhering bees, and hooked on to the cover of a baby nucleus by means of bent staples. This hatching brood with a good supply of capped honey tends to make the bees contented. They are put into the box and shut up for two days.

But the plan that we usually preferred was to make up these baby nuclei at an out-yard from sectional frames fitted into large standard frames; then when these boxes of bees were brought to the home yard they would stay right where they were placed.

The small engraving shows an enlarged view of the baby-nucleus box with the cover and its adhering frames lifted off for the purpose of inspection. If the queen is not found on the two outside surfaces, the lid will sit down on the top of the hive, bottom side up. One of the frames will be unhooked, leaving all the surface of the little combs exposed to view.

While we do not condemn the Pratt baby nuclei, yet the two or three defects already enumerated call for some slight changes. I now believe it would be better to have these nuclei a little larger, and made in pairs, so that the combined heat of the two clusters would be utilized, thus making practically two forces of bees out of one cluster, each rearing its own queen. Instead of making the little frames, six to the L., we have concluded that a size of three to the L. frame, the divisions made on perpendicular lines, will give better results. This is the size that was adopted years ago by Mr. Frank Benton in the government apiaries, and found to be entirely satisfactory. Detachable metal projections, or ears, the same as he uses, are secured to the top-bar after the little frames are filled with comb and brood in the large frames so that they can be hung in a double baby nucleus like ordinary loose unspaced frames.

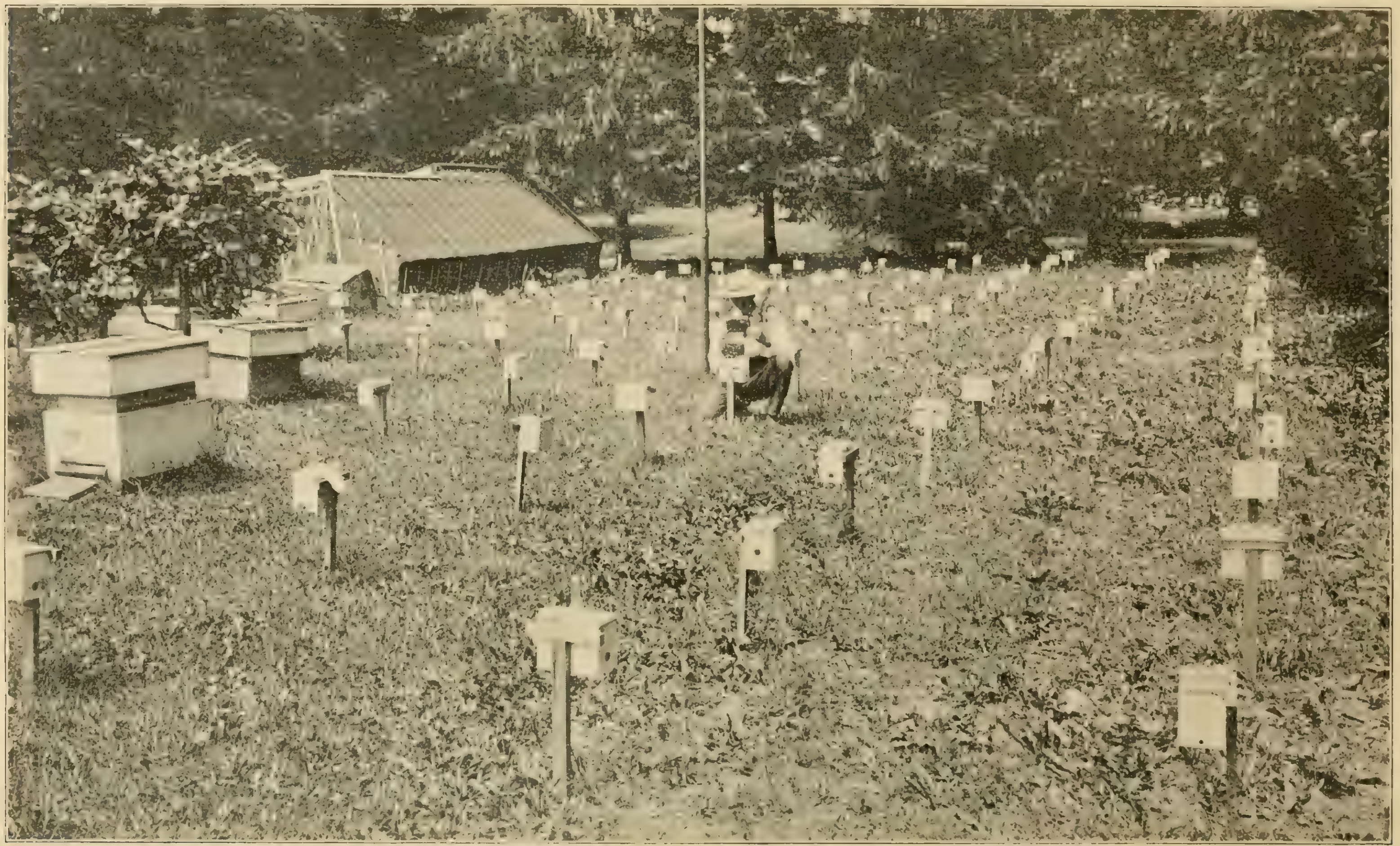
From some preliminary tests of these double nuclei this fall we have concluded that there will not need to be any renewing of bees, and that the brood can be reared right through the season, and that mating will go on the same as in the smaller nuclei. As a queen will have just twice the egg-laying room, or the exact equivalent of two-thirds of a Langstroth frame, it will not be necessary to get her out of the box the very day she begins to lay. Then the force of bees will be twice as strong, and this in turn will be practically doubled, since one cluster, separated from another by a very thin board partition, will have all the heat units of a cluster four times as large as the original Pratt size. While these double boxes will cost slightly more than the small Pratt nuclei, they will be very much warmer and more satisfactory in every way.

THE BEES ON THE ROOF OF OUR OFFICE BUILDING IN NEW YORK.

A Brief History of the Celebrated Case between the Root Company and the Candy-man; Other Cities where Bees are Kept on the Roof.

BY E. R. ROOT.

Our readers have not forgotten the notoriety that The A. I. Root Co. received at the hands of the general press concerning the bees on the roof of our office building in the city of New York. As is probably well known, we have a branch office in the metropolis, where we keep carloads of supplies for distribution to foreign ports as well as for the local trade. We occupy the second, third, and fourth floors, and, until a month or so ago, occupied the roof with some forty or more colonies. These were put there as a reserve for filling orders for bees and queens, and for the purpose of making demonstrations to prospective customers. But it so happened that there was a candy-man in the city, by the name of Loft, having something like 300 girls making candy in a three-story building within a stone's throw of the aforesaid roof. Unfortunately, our bees were in the wake of the prevailing wind; and whenever Mr. Candyman was boiling his big vats of sweetness the mellifluous odors would be wafted across our roof apiary. Apparently the bees paid but little attention to this until there came a dearth of nectar, and then they made it apparent that *they* liked candy as well as did those sweet little lasses across the way who make the stuff; but those aforesaid lasses did not like the bees, and would strike at them. Some of them were stung, so it was alleged. Mr. Candyman complained to the Board of Health that the bees were a nuisance—that they were eating up his candy, stinging his girls, and hindering his work. Instead of coming to us, he went straightway to the Board of Health, which, unfortunately in this case, has more authority than the Supreme Court. Indeed, I have been told it could even order down the City Hall if it saw fit to do so.



THE PRATT BABY NUCLEI IN FULL BLAST, AS THEY APPEARED AT OUR HOME YARD LAST SUMMER.

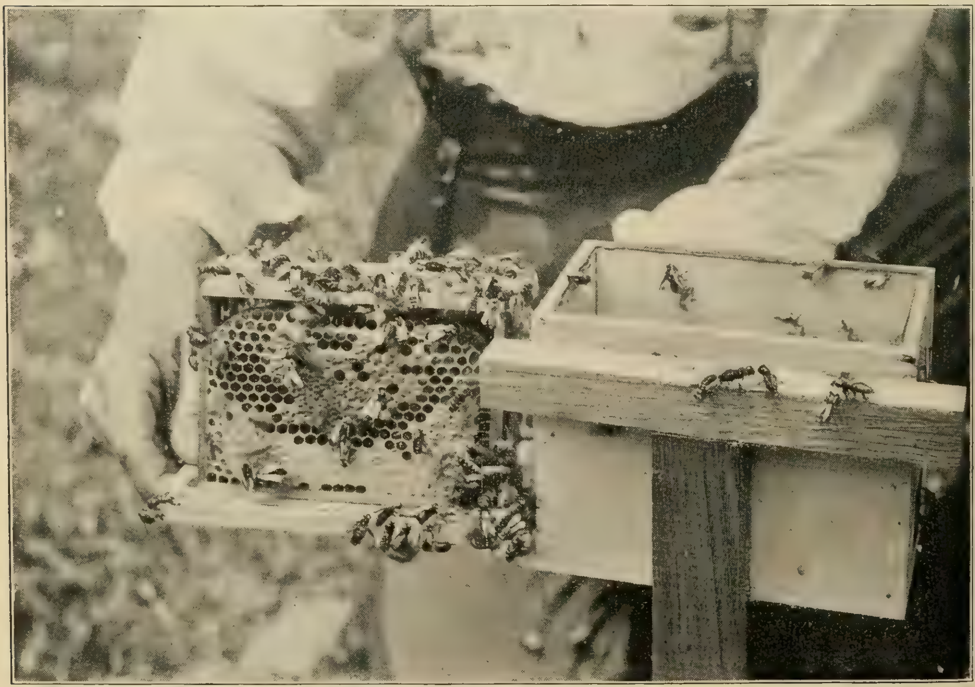
As soon as we received the order to remove the bees we requested a stay of proceedings, which was granted, and in the mean time we called on Mr. Loft. He was obdurate. He would listen to no suggestions to the effect that we would screen the windows at our own cost, and would guarantee he would have no further trouble from our bees, nor any other bees, in fact. In vain we protested that the bees were a necessary part of our business. When we told him we would screen the windows he said it could not be done short of a thousand dollars; but we estimated it would not be over a hundred. It did not make any difference. We had to get the bees off that roof instanter. He kept at the Board of Health, and we in the mean time kept getting a stay of proceedings. We finally agreed to remove them within a week. In the mean time Mr. Loft insisted that the Board of Health demand the immediate removal of the bees. This it finally did, and the bees were removed.

Mr. Loft's candy-building is not shown in the accompanying illustration. If the picture could show it, it would be seen at the upper left-hand corner overlooking our roof; and right here was where the trouble was. So long as our bees were in sight they were blamed for all the alleged annoyance. As a matter of fact there were other bees almost as near, and they probably were just as much in evidence as were ours. If Mr. Loft were to insist that the Board of Health order all the bees out of New York, including those in the parks belonging to the city, he would run up against a proposition. Instead of getting a few bees after his girls he would have all the bee-keepers in the city buzzing after *him in particular*. The National Bee-keepers' Association, as well as the Honey-producers' League, and the New York State Association of Bee-keepers' Societies, would probably take a hand in the matter.

We may make a test case of this next summer, as there are other bee-keepers who have certain interests in this matter. At the present time we have not decided just what course we shall pursue. We know this, that Mr. F. H. Farmer, of Boston, who is a candy-man, and candy is his principal business, keeps some 25 or 30 colonies right in front of his windows; but they are screened. There are other candy-makers in the city, but they have never entered any complaint regarding the Farmer bees. There have been bees in the city of New York for the last fifteen years, on several of the roofs; but there has never been any complaint lodged against them, to our knowledge. In Philadelphia, on the roof of its office, the A. I. Root Co. has been keeping bees for several years, and there are candy-factories and stores all round. Yet there has been no complaint.

Mr. Weber, of Cincinnati, as well as Mr. Muth, of that city, for many years prior to his time, kept bees on his roof, and has been keeping them there for many years.

If Mr. Loft had been disposed to be at all reasonable, we would have seen to it that he



PRATT BABY NUCLEUS OPENED UP FOR EXAMINATION.

was put to no inconvenience; and without cost to him we would have screened his windows from flies and other insects as well as bees. He has now put himself in a position where other bees can visit his premises, and he is not nearly as well off as he would have been if he had listened to our suggestion.

We asked the girls in the other buildings, that show just beyond, if they had had any trouble from the bees, and they answered in the negative. So did all the others in the immediate vicinity.

Whether or not Mr. Loft stirred this matter up in order to get newspaper advertising for his business we can not say. At all events, the Root Co. estimates that its office and business in the great metropolis have secured a publicity throughout the city, and the country as well, that would have cost us in actual advertising thousands of dollars. Most of the news items were favorable and sympathetic to the bees, while a few, and a very few, averred that we put the bees on the roof for the very purpose of letting them feed on Mr. Loft's candy.

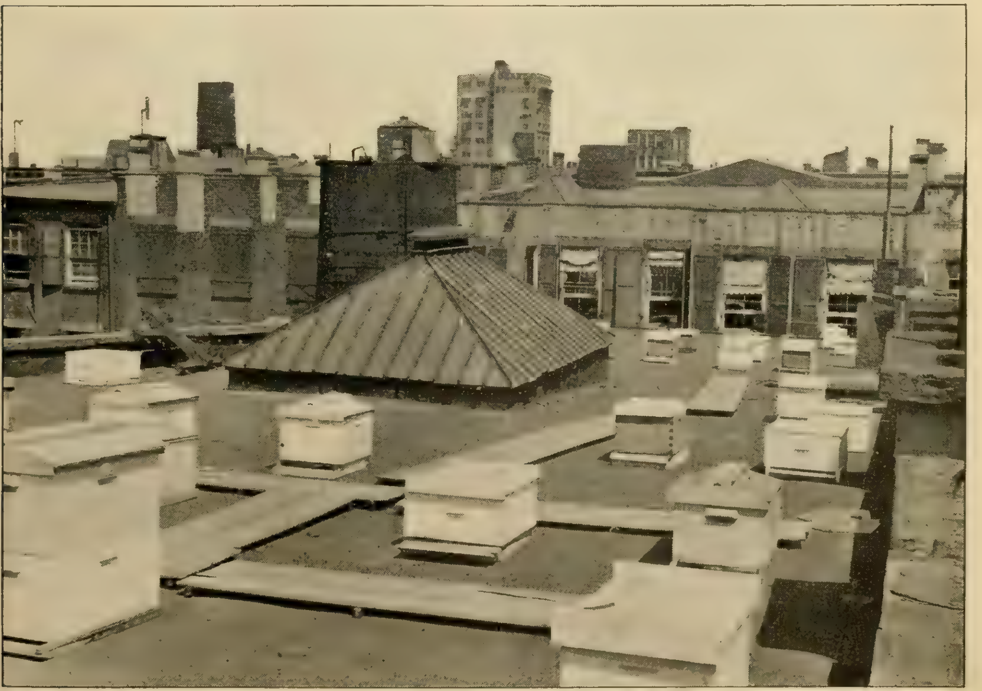
The whole affair was not without its humorous side. The newspapers for weeks fairly teemed with cartoons and funny write-ups.

The photo was taken by me when in New York, about a month or so before this case came up, at that time little dreaming that this lot of bees would receive the publicity it did throughout the great newspaper world. Historically it is now of more than ordinary interest. There are many buildings that are higher, round about, and the bees were in plain sight of a good many operatives, especially working-girls.

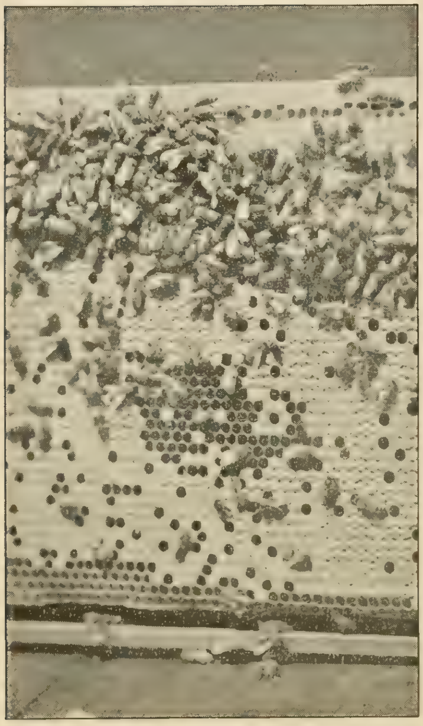
BLACK BROOD CURED AT E. W. ALEXANDER'S.

In our issue for Nov. 1, p. 1125, it will be remembered Mr. Alexander described his cure for black brood. When Dr. Lyon and myself were visiting at his apiary the former took a photo of a frame of brood which, a few months before, was about as rotten and bad a specimen as one would often see, according to the testimony of Mr. Alexander and his help; but at the time of my visit the comb was clean and sweet, and as healthy as one could wish to see. A photo was taken, and a section of it is reproduced on the next page. The colony had been cured some four or five months ; and the condition of this comb, and the brood in particular, speaks for itself. One can readily see how nicely marked are Mr. Alexander's bees, for they are all three-banded Italians, mainly Alexander's honey strain.

When one sees brood as shown in the photo, with an even homogeneous appearance, without flattened or sunken cells, he can generally conclude it is healthy; but there may be only here and there a cell, all the rest of the brood looking good; so, be careful. In hunting for the evidence of brood diseases it is very important to cast the eye on every square inch of surface to be able to catch the early stages. When there are only two or three diseased cells in the whole hive, with foul or black brood, it makes the



THE ROOT BEES IN NEW YORK THAT SUDDENLY BECAME FAMOUS THROUGH THE PAPERS.



A COMB CURED OF BLACK BROOD.

A specimen comb and brood from the Alexander yard that was, early this season, rotten with black brood, but at the time the snap-shot was taken was entirely cured.

problem of cure comparatively simple. But when either one gets the start, so there is scarcely a healthy cell of brood, then the situation is not so easily handled; and especially is this true of foul brood. At the present time, however, we have a hope that the Alexander cure will take care of black brood either in the early or last stages; but it is better, of course, not to take any risks.

Heads of Grain
from different fields

DRONES LATE IN THE YEAR.

Why is it that one of my colonies is producing drones so late in the season? While looking at my bees yesterday I noticed one colony flying drones as though it were June or July. They were abundant. I have been keeping a few colonies the past ten years, but this is the latest I have ever seen drones in any hive. JOHN KLINGLER.

Lykens, Pa., Nov. 6.

[The presence of drones late in the season may be due to a drone-laying or a failing queen. A queenless colony or one with a laying worker would explain the same phenomenon. In any case the condition is abnormal, and a good queen should replace whatever is responsible for the excess of drones. --ED.]

HOW TEMPERATURE AFFECTS THE SALE OF HONEY; CAUCASIAN BEES.

In regard to the article on page 1124, I beg to differ with Mr. Boyden where he says he doubts the temperature having any thing to do with the demand for honey. I think the temperature has *all* to do with it. It is generally conceded that, as the cool weather begins, our systems call for more heat-producing foods, and honey is one of them, the same as the buckwheat cakes, corn bread, and fat meats, on the same principle as the consumption of honey by bees wintered outdoors as compared with those wintered in cellars.

In regard to Caucasian bees, I will say that I have one colony. I procured the queen too late to form any opinion as to their merits, further than that they seem to have a very mild disposition, and, so far as flying in cool weather is concerned, and the taking of food, they seem to show as much energy as the Italians or blacks, so far as I can see now, and I am feeding them and some others yet. They all had a gala day today. Should I succeed in wintering these Caucasians I may have more to say with reference to them. The *worst* I can say of them now is, they resemble the blacks too much. ELIAS FOX.

Hillsboro, Wis., Nov. 12.

CAUCASIANS TAKE FEED READILY.

Just a word in connection with the editor's remark on page 1124 about Caucasians. I don't know what Mr. Pritchard calls a "common feeder," but I have a Caucasian colony which took 20 lbs. of syrup from a Miller feeder in 12 hours. Again, yesterday morning at sunrise the thermometer here registered 40°. All my bees flew freely throughout the day, and the Caucasians seemed to come out just as soon and as numerously as the others. I presume we can charge this to the old standby—locality.

I agree thoroughly with the rest of the article, however. I can take the cover off my hive, blow in among the bees, pound on the tops of the frames, etc., with no smoke about whatever, and they don't stir up a bit. Our government people here tell me that they have very good reports, from a honey-gathering standpoint, from some of the queens they sent out early last spring.

J. A. PHILLIPS.

Washington, D. C., Nov. 13, 1905.

[We are very glad to get this testimony, for the truth is what we want. So far, reports generally agree in stating that the Caucasians are gentle.—ED.]

EXTRACTED HONEY BRINGS BEST PRICE LATE IN FALL.

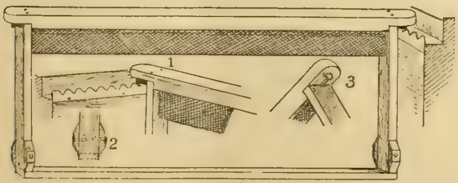
I just finished extracting, using a new 15 Cowan, two-frame, for the first this year. I had used a Novice for 15 years, and apparently it was good for a longer time yet. But I was surprised to see the improvement made in the construction of the new over the old. It is worth more than the difference in cost. I am sorry to say that the editor's advice in GLEANINGS, to sell honey early, is no good for extracted-honey men. For several years I have had my honey ready early, but never could get an offer worth considering till late fall. Early prices are unsettled, and it seems buyers are afraid. Last year, while large dealers were offering me 5½ to 6, by advertising I sold my honey for 7 to 7½, and no freight to pay.

Forest, O., Aug. 11. C. G. LUFT.

[You probably do not quite understand what we meant by "early." New honey, just off the hives, during the fore or latter part of July, usually has a good demand. During September there may be a lull, and this lull may continue until cool weather sets in. This is something, however, that varies according to the locality, But we have yet to find a case where it is advisable to wait until after the holidays before marketing of northern or eastern honey. So many bee-keepers are penny wise and pound foolish that they leave their marketing until a time when they can "get around to it."—ED.]

A NEW END-BAR FOR A SELF-SPACING FRAME.

I inclose a pattern of a new end-bar for the Hoffman frame. Please tell me just what you think of it. I have used them in my apiary for the last three years, and they have given the best of satisfaction. I have never yet broken one of them, and they space just as accurately at the bottom as at the top, and no one can fail to nail them correctly. I made my end-bars ½ inch thick; thus the wire never sags and buckles the foundation. C. E. WOODWARD.



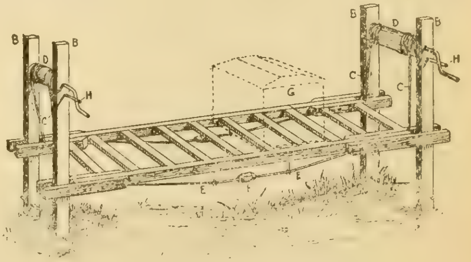
Matanzas, Cuba.

[As you ask me to tell you just what I think of your frame I will be frank enough to say that I do not like it. I believe it is always a mistake to have the spacing in the hive-rabbet. The free lateral movement back and forth, of frames, where the spacers are on the frames themselves, is a feature we can not afford to sacrifice. Your frame would be far better, in my opinion, if you would use the spacing-button (same as you have at the bottom) at the top also. Such a frame would not be a bad one to handle. This exact form of a frame was made the subject of a patent a number of years ago, but I believe the patent has run out.

There is another objection to your notched rabbet that occurs to me; and that is, in moving bees your frames would be liable to hop out of the notches, making very unequal spacing at the top. When the spacers are on the end-bars or top-bars the frames always have to be just so far apart.—ED.]

A WET-LAND HIVE-STAND.

In answer to the question asked by Prof. R. F. Smith, page 642, I would suggest the plan shown in the accompanying drawing.



When the flood approaches, send the negroes, who, he says, are afraid of the bees, to the windlass and wind up the hives to an elevation above the danger-line, and replace pin H to hold the hives in an elevated position until after the abatement; then let them down again, and the bees go on as if nothing had occurred. G. B. HERBERT.

Corydon, Iowa, July 28.

[Your elevator hive-stand is all right, but altogether too expensive for the purpose. There is not enough profit in bee-keeping to have cogwheels, pulleys, and ropes, and we must reduce every thing down to the simplest point possible. If the locality is liable to be inundated, better by far make hive-stands sufficiently large to carry fifteen or twenty hives with a platform elevated above high-water mark the year round. I found such hive-stands in California, some of them six or eight feet high. They were cheaply constructed out of fence-posts, with cross-bars suitably braced. Each stand would hold from 25 to 50 colonies, placed in two rows, with an alleyway between for the apiarist to use. Illustrations of this are found in the back part of our A B C of Bee Culture.—ED.]

QUESTIONS CONCERNING FEEDING BEES.

Assuming that a hive of bees contained no honey, how many pounds of granulated sugar would be necessary to feed an average-sized colony to insure ample stores for outdoor wintering in New England?

Does syrup made by dissolving one part

sugar in two parts water often crystallize? Is it then entirely useless as food for bees?

What would be the effect of feeding a colony all of the syrup they would carry into the hive? If there was a surplus in the spring would it be a benefit, i. e., would the bees begin working sooner in the super?

Why remove the cover of the hive in putting on the winter case? Why not pack the chaff around it, place a sack of the same over it, and then put on the winter case?

Waldoboro, Me., Oct. 27. J. H. LOVELL.

[Sealed stores of sugar syrup, when properly evaporated and ripened, would be of the consistency of from 15 to 25 per cent of water, and from 85 to 75 per cent of sugar. A good deal depends on conditions. Usually 20 lbs. of stores is sufficient for an outdoor colony. In that case you would need to figure on anywhere from 15 to 18 lbs. of sugar to the hive. I would generally feed it half sugar and half water, because this more nearly approaches nectar, giving the bees a better chance to ripen it, or, to speak more scientifically, "invert" it. A thin syrup would be very much less liable to crystallize than a thick one, for this reason. Where one desires to stimulate, a two-part-water and one-part-sugar mixture will be better than an equal-part solution.

For winter feeding I would not advise feeding a colony all the syrup it will take. It should be permitted to have a clustering-nest of empty cells in the center of the brood-nest, with sealed stores all around them. To jam in the feed until every thing is full of sealed stores would be going altogether too far.

On the other hand, it is true that a colony that has an over-supply of stores will be in much better condition in spring than one that has a scant amount; but a golden mean is better still.

Where the winter case will permit it, it is better to leave the outdoor winter cover on the hive just as the bees have sealed it. To break the sealing and then put on the winter case after cold weather has set in will give the bees no chance to seal again, and because of that fact some heat will escape.—ED.]

A FEW SUGGESTIONS AND QUESTIONS.

In increasing this year on the three-from-two plan I did not put *any* brood in the "brushed-swarm" hives, and in one case a super was half filled with bee-bread.

As the outside frames in the body of a hive are mostly filled with honey, would not their removal give needed room and discourage swarming? If comb honey were desired, their place could be taken by frames with starters put in the center of the body: if extracted, the empty combs could be replaced in the middle.

In preparing shipping-boxes the pieces which hold the glass might be used to carry a statement of the shipper's name—"Pure Comb Honey from Apiary of—."

Perhaps The A. I. Root Co. would put it on as above, leaving space for the insertion of name and place by shipper. If both strips had it on, the legend could be read either side up.

I find that I can use the Miller feeder more easily by adding a board on the bottom so that it can be put on top of the brood-chamber without using a super.

Kensington, Md. C. G. DICKSON.

[When you speak of a three-from-two plan of increase you do not make it entirely clear to what you refer. In the absence of any statement, I will assume that a part of the bees from two hives are brushed into a third, this third one having no brood. Why was the super filled with pollen in your case? Probably because you put these two lots of shaken bees on to foundation, or starters, in the brood-nest. If the bees happened to draw out the foundation in the super first, they would probably store pollen in the first drawn comb. You do not say whether you gave this third hive, made up from the other two, any kind of queen. Correspondents in asking questions should be explicit in details, otherwise we are handicapped in giving intelligent answers.

The removal of the combs of honey at the sides would tend slightly to discourage swarming; the putting in frames of starters would be all right providing the queen occupied the comb as soon as it was drawn or partly drawn from the foundation.

Your suggestion regarding the use of the wording "Pure Honey from Apiary of —" on the horizontal rails of shipping-cases is a good one. We should like to hear from our readers as to whether there would be any objections or whether the former wording could be improved.—ED.]

A COLONY OF BEES LIVING IN THE OPEN AIR WITHOUT A HIVE.

Having had a little experience a few days ago which I regard as something unusual I will relate it to you and ask if it is often that others have like experiences.

I was called away some distance from home by a message over the telephone, to the effect that the sender had discovered a swarm of bees hanging in an apple-tree, building comb. I was, of course, convinced that he had found a swarm of bees, but I thought that, from the amount of comb they said there was, it was mostly if not all imaginary. But when I arrived at the place and was shown the bees hanging on a limb of a Ben Davis apple-tree, about 12 ft. from the ground, I concluded it was a rather large cluster; and upon blowing smoke in them I discovered, sure enough, that there was comb and considerable of it at that.

When we got the limb down and examined it we found that there was plenty of comb honey and brood hatching out. We tied three frames full of brood and had enough comb to fill a good-sized dishpan left, with from one-half to one gallon of honey which ran out of the comb.

I thought myself that this would have been a sight worth photographing; but as there were no cameras near, and I had not time to go back, I gave it up.

The bees are at present in the hive working away. They have a nice large hybrid queen. E. J. SPAUGH.

Burney, Ind.

[We have had instances of a swarm of bees clustering in an ordinary tree, and building combs as if they expected to live there permanently. The older editions of the A B C of Bee Culture contained a fine illustration of such a colony without a hive, with some seven or eight combs of honey, and brood in all stages. This colony prospered, and had occupied those quarters for some two years. But this was in California, where the climate is mild. In one like yours, the colony would probably have succumbed to the first winter, for all other hiveless colonies in this climate have died so far as we have had any reports of them. I am sorry you did not get a photo of them, as cases of this kind are comparatively rare, and are interesting if nothing more.

I wish to say to our subscribers that, when they see any curiosity of any kind relating to the subject of bees, if they will employ a good photographer to take the picture, and send it to us, we will pay all expenses.—ED.]

FRAME-SPACERS THAT ARE NOT IN THE WAY.

As everybody else has invented a frame-spacer, I too will take a hand. Put a small button, similar to those used in trunk-trays, for fastening the different compartments on each end of the top-bar. When turned crosswise of the top-bar, the ends should extend out past the edge of the top-bar just half the distance of the space desired between top-bars, so that the ends of the buttons will come together in the center of the space between the bars. I would have the ends of these buttons rounded—not square-cornered. In opening up the hive, all you have to do is to turn these buttons parallel with the top-bar, and you are at once ready to take the frames from the hive and uncap, as the buttons are entirely out of the way of the uncapping-knife. It is not even necessary to remove the division-board from the hive, as your frames are all loose and ready to lift out as soon as the buttons are turned; and this can be done in much less time than is required to pry out the division-board.

I know you will make your usual objection, that they can not be handled in pairs or trios; but, as some one pointed out a short time ago, frames are not handled in that way to any great extent, and certainly not at extracting time. J. D. ROWAN.

Chesterville, Miss., Oct. 11.

[About fifteen years ago, furniture-nail frame-spacers were illustrated and described; but they never came into general use, for the reason that it was not possible at that time to get such nails of the right depth or height in order to make the proper spacing. The principle is all right, and perhaps it is as good as or better than any thing else that has ever been suggested; and it may be that it will pay, some time, to get up suitable dies for making spacers of exactly the right size. No less an authority than Dr. C. C. Miller has been clamoring for something of this kind for years, averring that such a spacer would secure practically all the advantages of any spacer, without the disadvantages.—ED.]

THE DEFECT IN THE OHIO FOUL-BROOD LAW.

This association has appointed a "Committee on Law" whose duty it is to devise ways and means to secure a foul-brood inspector for this and adjacent counties. As the law now stands, it is ineffective. In section one it reads, "That whenever a petition is presented to the board of county commissioners of any county in the State of Ohio, signed by three or more persons, all of whom are residents of said county, and possessors of an apiary or place where bees are kept, stating that certain apiaries within said county are infected with the disease known as foul brood, or any other disease which is injurious to bees or their larvæ, praying that an inspector be appointed by said county commissioners, said board of county commissioners *may*, within five days after the presentation of said petition, appoint a person as bee inspector who is resident of said county, who shall be a skilled bee-keeper, having thorough knowledge of foul brood and other diseases injurious to bees and their larvæ, and the treatment of same."

The word *may* makes it optional. This should not be. The word *shall* should be substituted, making it imperative. Our committee represents five different counties of this State, all practical bee-keepers, whose duty it is to see the members of the Ohio legislature of their respective districts in regard to the above misconstruction; also to explain to them the necessity of foul-brood inspectors, and eventually secure their appointments. HENRY REDDERT, Sec.

Cincinnati, O., Oct. 29, 1905.

[I do not remember now just why the word *may* was substituted for the word *shall;* but I am under the impression that the law would have failed of passage had not this change been made. The bee-keepers who had this matter in charge probably concluded it was better to have *something* rather than nothing. While it would be better, of course, to get this change made if possible, the thing to do now is to get on the right side of the county commissioners at the start. Let there be a goodly number of bee-keepers who can explain the terrors of foul brood, and the need of having some one man appointed who can, at very slight expense, at the beginning of the thing, keep the disease in check. I should be glad to hear from any of those who had the bill in charge while it was before the General Assembly, as to whether the substitution, if substitution there was, was forced into the measure.—ED.]

OUR HOMES,

BY A. I. ROOT.

Train up a child in the way he should go, and when he is old he will not depart from it.—PROV. 22 : 6.

The sermon that I am going to give you in this Home paper is by the request of Mrs. A. I. Root ; but before giving it I wish to tell you just why she selected this sermon among all the other sermons we have listened to since the Home papers have been published—that is, toward thirty years—and asked me to stand aside and give place to it. I need not tell you that *A. I. Root* is full of hobbies and new inventions. Mrs. Root, during all her life, has had just *one* "hobby." Hobby is not just the word to express what I mean, but I will let it go for want of a better one. Mrs. Root's lifework has been, first, last, and always, *education.* She did not have the advantages I did in youth, and perhaps she did not take hold as easily as I did naturally. It would not be any thing strange if she at times, especially in her early life, joined in with the excitements going on with the rest of those of her age, and did not give as much attention as she might have done to the privileges afforded by the schools of that day. But as she grew older she began to realize more and more the importance of education. After we were married we had happy times together in trying to keep posted as to what was going on all over this world of ours. When the five children came trooping along one after another, she bent her whole energies toward giving them all the advantages the times afforded. Just as soon as Ernest was old enough to go to school he was started off promptly *on time*, and *every day* in the week. She made it her business to see there was no failure and no tardiness. She helped him get his lessons before he started, then met him at the gate at night and asked him how he had succeeded. In a little time he was as glad to tell her his triumphs as she was glad to hear them. In this way it was kept up with the whole five There was no let-up day or night. She followed them with their studies, kept pace with all the school was doing, visited the schools occasionally, knew the teachers personally, and kept it right up till the *last one* had gone off to Oberlin to finish. No, she did not give it up even then.

When we were first married I rather looked down upon her from the lofty heights(?) of my intellect and masculine mental powers. May God forgive me. I knew what she was doing for the children, but I turned it all over to her, and had but little to do with it. *I* did not know, *the children* did not know, and probably she herself at that time did not comprehend what good would come from it in later years. I presume that she had read the beautiful little text I have put at the head of this talk; but I am not sure her faith was equal to grasping the wondrous truth in the latter part of it. Our children, like all others, were at times contrary and wayward. They did not want to go to school, and made excuses. They got lazy, and wanted to lag behind. But there was no escaping that keen indefatigable mother of theirs. Ernest has written about the "lightning operators" in bee culture. Mrs. Root has for the greater part of her life done her own work with the children's help; and if ever there was a *lightning operator* in bringing up a family and getting them to go to school, she was "it."

After I became a follower of the Lord Jesus Christ I began to get a glimpse of the wife God gave me ; and instead of looking down on her efforts I began to take a lower seat, and to look up and admire her untiring zeal for education. If I were sure Mrs. Root would not get hold of this paper I should like to say right here that, during all those years of such strenuous work, she was laying the foundations of the future prosperity and success of The A. I. Root Co., Medina, O., and the busy little woman did not know it; and if she were to see it in this paper she would tear it out and say it was not so. I think the children will all agree with me, however, and we will try to get it into print without her seeing it.

Now for the sermon that captured Mrs. Root, heart and soul. It was to be preached just before our Medina schools opened, but sickness prevented Bro. Hill from preaching it any sooner.

And Eli perceived that the Lord had called the child. I. SAM. 3 : 8.

There is an unusual pathos in the story of the old priest and his young attendant. Eli had two sons. They were both wicked. The excellent behavior, the affectionate and dutiful manner of this young attendant in the temple, brought comfort to the old man in the time of sadness. One night the boy was awakened in his sleep by hearing his name called. He arose, thinking the prophet had called him, and he went to him and said, "Behold, I am here." He found he was mistaken; the priest had not called him. Three times did this experience occur, and at length Eli perceived that God had called him. This is not an exceptional but a specimen case. When we read of the great heroes in the Bible, the great deliverances, the great endurances, we are apt to think of their being written for our admiration rather than for our imitation. The method of this call was unusual, but it is not unusual for God to call His people early in life. If the proof of God's interest in the young is to be found in the witness of the Scriptures, the testimony of religious biography through the ages, and the testimony of Christian experience in every age of the world, we must conclude that the great and the good have often been called in childhood. Parents, teachers, and guardians, and others who have anything to do with the young, are warranted, not only in desiring, but in expecting that those under their direction shall find themselves walking in the way of righteousness from the very beginning. The voice of parent and teacher is often and ought always to be the call of God to the child. When Patrick Henry made his immortal speech before the Virginia convention, two future presidents of the United States, as schoolboys, had come over from a neighboring college to hear the speech. Those boys made the policy of the nation long after Patrick Henry's work was done. When Henry Clay made a stumping tour through the woods along the Ohio River, a lank, uncouth, backwoods boy listens to his speech, and for the first time thinks of being a lawyer and a statesman. In after years it is that backwoods boy who, in the hour of darkness, pilots the nation through the darkest voyage she ever took. Illustrations of this nature from secular and religious history confirming this fact are constantly occurring, so that we are compelled to acknowledge that child instruction is a theme of vital importance.

Fifty years makes many changes, but none more radical than the changes in literature touching childhood. Fifty years ago books were written *by* grown people *for* grown people. Authors were the denizens of a childless world. Science, art or invention took no notice of children. One of the things for which the close of the 19th century will always be noted is the *discovery* of the child. For the first time men began to realize the value and importance of the utterance of Him who said, "Except ye be converted and become as little children"—in sincerity, humility, simplicity, faith and genuineness—ye cannot even *see* the kingdom of God.

God ordained three institutions to bless mankind. The first is a government. To secure the peace, prosperity, and safety of a nation, a government is necessary. The second institution was the church. But before either of these was possible there was instituted the family. Even heathen moralists insist upon the family as necessary to public virtue. There can be no true public life where the family is corrupt, any more than there can be a solid structure where the foundation stones are soft. Society rests upon the family. Social morality depends upon true family life. Christianity emphasizes the necessity of a normal family life. Greece and Rome violated the law of the family, and impurity and selfish indulgence sapped the life of these great states. Where family life decays, the state is in danger, and civilization rests upon quicksand.

A close ally to the family in the development of the young is the public schools. In another week you will have heard the buzz of voices, the song of the school-bell, and teachers will be able to testify out of a full heart, that forty children in a single room have enough pent-up energy to run a dozen Corliss engines. The most significant day in a child's life is its spiritual birthday, and the next most important is its intellectual birthday. Whatever your children may accumulate and acquire in the future, their one inalienable possession will be their education.

The only orders of nobility that are possible in a republic are education and character. Education is the process that makes fully developed men and women. Someone asked an old philosopher to define man. He said, "Man is a two-legged creature without feathers." But when a clever wag brought the philosopher a plucked rooster he had to recast his definition. Man is a creature with a body which is inhabited with a mind, heart, and will. The condition and development of that body, mind, heart and will determine a man's happiness and his usefulness far more than any outward possession. It is the pride of the nation that the republic provides every child a chance to secure a liberal education. It is sometimes the shame of our nation that some do not make a better use of their opportunity. Every new school year is the beginning of a new epoch for children, parents and teachers. Broadly speaking, a child can have anything he wishes, but he cannot have everything. He must make choices. He must believe in the doctrine of election. The better must always be sacrificed for the best. It is fitting, then, that, on the threshold of the school year, we should think of the *relations of the home and school.*

Washington Irving has given us an account, in perhaps the most charming English ever written by an American, of the school and schoolmaster of Sleepy Hollow. I trust you are all familiar with Ichabod Crane, his short sleeved coat with flapping tails and his pantaloons which came to an end so prematurely; his nasal psalm-singing and vast appetite for dinners and ghost stories, and his fondness for little children who had good cooks for mothers or pretty grown-up sisters. His schoolhouse, locked by slanting stakes and twisted willows, harmonizes with the picture. Within, the pedagogue perched upon a high stool teaches the "three r's"—reading, riting and rithmetic; meanwhile, with the redoubtable birch rod, he watches the buzzing pupils who con their lessons half aloud, for Ichabod is a firm believer in the maxim that "to spare the rod was to spoil the child;" and, as Irving quaintly remarks, Ichabod's children were not spoiled. The inventory of the schoolmaster's property and library after his luckless wooing and mysterious disappearance from Sleepy Hollow is suggestive as to the pay and literary qualifications of such a position. "Two shirts and a half, two stocks for the neck, a pair of worsted stockings, a pair of corduroy small clothes, and a rusty razor;" and for the library "a book of psalm tunes, Cotton Mather's History of New England Witchcraft, a New England Almanack, a book of dreams and fortune telling." Hans Van Ripper, as executor of the estate, consigned the books to the flames, and took his children out of school, observing that he "never knew any good to come from this same reading and writing."

We may not know exactly what was Irving's intention in writing this account, but he has given us a weird and beautiful picture, an exquisite romance, and a faithful picture of an institution which has ceased to be. Every American ought to read about those wonderfully prosaic schools, with their dirty rooms, their brutal floggings, their narrow routine of studies, the ignorance of teachers and governing boards, the niggardly and superstitious teachers, and the communities with their Hans Van Ripper who never saw any good in that same reading and writing. You ought to read it, not only as a matter of history, but to show you what a hundred years of effort on the part of teachers and educators has done for the public school system. In the consideration of our theme, then, there are three things I desire to emphasize.

I. Let us magnify the importance of an education.

There are fourteen and a half million children enrolled in the public schools of this country. Twenty-three percent of the entire population of this country answers the call of the school-bell; $2.24 every man, woman and child pays for the support of the public school system. The average number of schooldays in a year in the whole country is 134. As a matter of preparation for citizenship our nation requires that we attend school for eight years. But when you remember that every day of the average 134 schooldays, 36 out of every 100 pupils, or one in every three, missed school, it does not seem as though education were as important to every father and mother as it is to the state. Massachusetts has the best attendance in the nation, and Minnesota is guilty of the sin of having the worst. When your child is absent from school for every ache or pain, or every time the routine of the home is disturbed, you can hold the public schools responsible for nothing.

One says, "Knowledge opens the furrows and sows the seed; knowledge curves the sickle and reaps the sheaf; knowledge builds the mill and grinds the corn and converts it into bread; knowledge touches a forked stick and turns it into a steel plow." We have it on high authority that wisdom is better than rubies. The richest man of his day, the king of his country, and the wisest man of all time, declared that wisdom and knowledge have their own certain reward.

When Matthew Arnold visited this country he was struck by the democratic institutions of the nation. One day he went into the reading-room of the city of Boston, and saw a little bare-footed newsboy sitting in one of the best chairs of the reading-room. The great essayist was completely astounded. "Do you let barefooted boys in the reading room," he asked. You would never see such a sight as that in Europe. Mr. Arnold went over to the boy and engaged him in conversation, and found that he was reading the life of George Washington, and that he was a young gentleman of decidedly anti-British tendencies, and for his age remarkably well informed. Mr. Arnold came back to the desk and said, "I do not think I have been impressed with anything else that I have seen since arriving in this country as I am now impressed by meeting this barefooted boy in the reading-room." What a tribute it is to democratic institutions to say that, instead of sending that boy out to wander alone in the streets, they permit him to come in here and excite his youthful imagination by reading such a book as the life of Washington! The reading of that one book may be the means of changing the whole course of that boy's life, of making him a useful, honorable and worthy citizen of his great country.

Mr. Arnold touched the secret of our power. We are the wonder of modern times to Europeans. Democracy to a European is a mob government, and yet we have attained heights of power and glory as a nation. We have stood the strain over one hundred years, the shock of the bloodiest civil war since the morning of creation. Today our prosperity is to them a constant source of amazement. The secret of it all is that our fathers built the republic on free boys, free brains, free libraries and free schools. When our fathers wanted to make the voter a Christian they founded a free church; when they wanted to make a man a patriot they gave him his political rights and a share in the government; to make him a scholar they founded a free school, the academy, and the college. And this is why, when the new emigrants have come by the millions with their note of anarchy, with their hatred of all government in the state, with their opposition to ecclesiasticism in the church, they have been transformed into patriots and citizens of good quality—the strong and useful leaders in the city and state and national life.

Not less important is education in the accumulation of wealth. Give a thousand dollars to your boy and he can soon spend it; but he can never spend a thousand dollars given to him in an education. The interest of a thousand dollars is $60 per year; but the difference in position which two or three years of schooling will give to a boy is worth anywhere from $300 to $1,000 a year. Investments which pay from 33 to 100 percent are not common; education is such an investment. A liberal education equips a man for one hundred chances. Failing to open one door he has the keys to ninety-nine more. Well-educated men rarely starve, and rarely go to the poorhouse. There are not many high school graduates among the beggars and paupers and tramps of the country. Money in the education of a child is a good investment.

Education contributes to the wealth of a nation. Ignorance ruined the soil of Palestine and the hillsides of New England. Ignorance has wasted the lumber of our great forests. Ignorance brought pestilence through the lack of the principles of sanitation. See the loss of life in our great epidemics. Education in farming has increased the production so that we raise more wheat per acre in Ohio today than we did in the day when the soil was rich in its virgin conditions. Looking back to the time before the Civil War we see that the South was growing poorer, and the North was growing richer and richer. Slave labor represented ignorant labor. The slave bought no newspaper, no books; his ignorance starved the press; he had one coat and one pair of trousers; he had no amusements; he had no use for the sewing machine, the cottage organ, nor any of the comforts of life, and so there was no need for manufacturing towns. Free labor is educated labor. Good workmen are usually good buyers; they hunger for beauty, friendship, hospitality and comforts, and these develop new needs and people become prosperous by leaps and by bounds. Rudyard Kipling paid two cents for paper, ink and pen; he made some marks upon the paper and called them the "Recessional." He sold it to the London *Times* for $2,000. The raw material cost two cents; the rest was education and training.

The story went the rounds of the papers a few years ago of a machine which broke down. The owners sent to the city for a specialist, who repaired the broken machine in thirty minutes. He charged them $50.50. They asked him what the fifty cents was for, and he replied, "It was for fixing the machine, and the $50 was for knowing how to do it." There is a cave of diamonds, and knowledge finds the path to that cave; therefore, "with all thy getting get understanding."

II. The helpful relations of the home to the schools requires the home to magnify and appreciate the work of the teachers.

The essence of all criticism should be helpfulness. Thoughtless and useless criticism is cheap. A fakir dentist stood upon the streets of our town a few weeks ago, a man who could not make his living for more than two days in any town at a time, and who, as a preface to the sale of his quackery at enormous prices, which some of you bought, he attacked schools, all professions, government, religion, and wound up with the astounding statement that he "would not allow his boy to graduate in a high school, because he did not want him to be a blot on civilization, and anyway, that nineteen-twentieths of all that we know is false." And the thoughtless ones laughed. A few years ago a prominent divine, whose sermons were published in many of the dailies through the country, preached a sermon which was widely circulated, on the cramming, crowding, stuffing and jamming of a child's intellect, and, in connection with a lot of other baseless utterances, said:

"Girls ten years of age studying algebra; boys twelve years of age racking their brain over trigonometry; children unacquainted with their mother tongue crying over their French, German, and Latin lessons; all the vivacity of their nature beaten out of them by the heavy beetle of a Greek lexicon. And you doctor them for this and you give them a little of that medicine for something else, and you wonder what is the matter with them. I will tell you what is the matter with them. They are finishing their education.

"In my parish in Philadelphia a little child was so pushed at school that she was thrown into a fever, and in her dying delirium all night long she was trying to recite the multiplication table. In my boyhood home I remember that in our class at school there was one lad who knew more than all the rest of us put together. If we were fast in our arithmetic he extricated us. When we stood up for the spelling class, he was almost always at the head of the class. Visitors came to his father's house, and he was almost always brought out as a prodigy. At eighteen years of age he was an idiot. He lived ten years an idiot, and died an idiot, not knowing his right hand from his left, or day from night. The parents and the teachers made him an idiot.'

The only trouble with that utterance is that every word of it is false. If the case of the idiot cited was correctly diagnosed, it was not the school system nor the teacher that ought to be indicted, but the father and the mother. We are not warranted in forming general conclusions from specific instances.

If a teacher is to be held responsible for a knowledge of each child's condition and capacity she must have omniscience. The curriculum of the schools is not made by teacher, superintendent nor by the school board only indirectly. It is the result of an observation over a wide area of territory, and is adapted to the mind of the *average* child. If, because of hereditary tendencies, or of sickness or of rapid development, your child is not able to cope with the studies of her class, what is a parent for if not to guide in such a case?

To hear some criticise the schools, one would think that the children were always angelic and the teachers were always diabolic. Strange how we are prejudiced in favor of our own children! how to *us,* all virtue and excellency run in our own families.

I believe it is not customary to interrupt a minister in the midst of his sermon; but I am sure my dear brother will excuse me if I ask him to wait a bit and let me add emphasis to his further remarks as follows:

> You have the only boy that amounts to much in the world—so have I. His hair doesn't look much like mine, but he has more of it; his eyes are not the color of mine, but his caught the blue out of the sky as he came through; his face is not shaped like mine, but he smiles twice where I smile once; and when the dimples come in his face it makes one think of the angels; and he is smart. He knows just when to go to sleep and when to wake up, and that is more than you can say of your child. If he continues to improve in four years as he has in two I shall want the school-board to employ Harper to teach him. That's the way I am tempted to feel about *my* boy—and there are others. You think that nonsense? There is more sense than otherwise in that description.

After Mr. Hill had made the above remark he paused in his sermon, and a peculiar smile lit up his face that the audience had learned by past experience always prefaces some bit of pleasantry. He pointed his thumb toward himself, and then went on. (By the way, he put a blue mark on the margin, suggesting that we leave out the part about his own boy, but we have not obeyed instructions.)

Mrs. Root only once in her busy life has consented to stand up before an audience and speak. It was once when I talked to our country school in Northern Michigan. After I had finished, the superintendent courteously asked if Mrs. Root had not something to add to what had already been said. Then came one of the happiest surprises of my life. Mrs. Root got up and spoke. She said I had already mentioned the importance of being on hand every day; and she said that, in training a family of children, and in helping to make a success of their education, she had found it of equal importance to have them on hand *promptly* when the school opened, every day and every week—no tardiness. She said that, as a mother, she had labored hard not only to have the pupil on hand promptly at the opening of the school, but to have his lessons in mind so there would be but little probability of a failure in his recitations. She said such rigid training seems a little hard at first; but after the child gets used to it, and takes it up every day as a matter of course, he does not find it so very hard after all; and she felt sure that this one lesson of punctuality would be worth much to them in after-life. She closed by urging parents and teachers to try hard to have the pupils on hand every day so that there would be no failure or break in their regular lessons.

With this preface, friends, you can understand why Mrs. Root was so intensely interested in the following part of the sermon. She did not say amen out loud, as I often do, but no doubt there were many amens in her heart.

It is natural that we think well of our children, and so we are carried away with our interest in them, so as to be unfair toward the painstaking, conscientious, patient teacher. The most irrational conduct I think I have ever seen has been on the part of parents toward the nation's greatest benefactors—parents with little minds, darkened by ignorance, warped by prejudice, and saturated with an amazing conceit, who have assumed knowledge greater than that possessed by the school board, superintendent and teachers combined, because they have been blinded by love of their children.

We may justly expect certain things from the teacher. First, she must be a student of child life. Some knowledge of the child growth and development, the way to approach the child mind, the changes that are taking place in the physical as well as the mental life of the child—these the teacher must know as the farmer knows his land. We may justly expect, too, that she shall know the tools with which she works, and these tools are largely the subjects which are taught in the schoolroom; and the teacher's knowledge ought to pass beyond merely knowing the contents of the subject in the book; she ought to know how it affects the mind and how it works upon the mind. The editor of the *Sunday School Times*, usually so clear and correct, recently said: "Knowledge is the goal of secular education; character is a by-product. Character is the goal of Sunday School instruction, and intellectual knowledge is the by-product," to which statement both Sunday School teachers and public school teachers all over the country are seriously objecting, for it prophecies sad days before us if it shall ever become the object of the public school to make character a by-product, or the Sunday school to make intellectual knowledge a by-product. The National Association of Teachers at its last annual meeting in July took occasion to affirm, as it had done before, that "the ultimate object of popular education is to teach the children how to live righteously, healthfully and happily," and said they "desired to record their approval of the increasing appreciation among educators of the fact that the building of character is the real aim of the schools and the ultimate reason for the expenditure of millions of dollars for their maintenance." And this we have a right to expect of the teacher.

We have a right to expect the parent to uphold the teachers in their aim. When things do not run smoothly with your children in the schoolroom it is not fair, first of all, to talk it over with your neighbors, your friends, your relatives, the school board, and the town in general, and then, when you have assumed the prerogative of a prosecuting attorney, judge and jury, and have arrested, tried and convicted, sentenced and crucified the reputation of your teacher, finally to hunt up your child's teacher and ask him if there were any reasons why the judgment should not be passed? Let us mix a little common sense in our relation to this bulwark of the nation. The conduct, progress and general relationship of your child in the schoolroom is, first of all, the business of no one but the child's teacher and yourselves. When your views do not coincide with those of the teacher it becomes a matter of consideration for the superintendent. Children would be happier, make more progress, and be better prepared for the duties of life, if the parents would talk with the teacher and superintendent concerning the education of their children, rather than, with acrimonious spirit, to gossip with their neighbors about things which a word of explanation would make clear and reasonable.

No one desires more than the teacher a peaceful relationship in the work of the school. To uphold a child against the teacher is to lessen the child's receptiveness to instruction, if not to destroy the teacher's effectiveness for the child. We ought to bridge over with parental tact the momentary breach between pupil and teacher. Teachers are not always perfect, parents are not always perfect, and children are not always perfect. These instructors stand in a representative capacity, and the child should be taught to respect and reverence them, partly for the teacher's sake and chiefly for the child's sake.

III. I have dwelt so long upon the relation between the home and the school that there is time left but to mention those fundamental virtues that lie at the basis of all character, and upon which teacher and parent ought to unite.

They are so trite that we are tempted to smile when they are considered as fundamental in character. First of all are *punctuality* and *regularity*. God is the greatest teacher of the universe. His models are always perfect. He has written it so deeply into the nature of things that they should obey these two laws that we can determine, for centuries to come, the rising and the setting of the sun and moon. There is not a calling in life where these traits of character are not a necessity, and perhaps no trait, when once acquired, sticks to us like these Horace Greeley is renowned as the hardest worker of the last century. He was for thirty years at the head of one of the greatest newspapers that the nation or the world ever saw. The strongest editorials of his time were written by him. He knew every part of his own country, and traveled abroad. He farmed, and wrote a book to farmers on what he knew about farming. He was a student of history, and wrote two large volumes on the American conflict, and did them all while editor of the paper. His biographers declare it was possible for him to perform these Herculean tasks because he had for his friends those twin brothers—Punctuality and Regularity.

Oh, if I could only tell you how in the secular and religious education of the child, how in the development of the Christian life, how in the success and failure of business, all things depend upon these virtues, you would make them fundamental in your child's education!

Obedience is a prime virtue which a child should learn from both parent and teacher; for the school and the home whose combined teaching has failed to teach the majesty and the sanctity of law are colossal failures. Order is the first law of heaven and earth. It has been said that one of the causes of the civil war was that the South had no public schools where the children were taught obedience. Miss Sarah Smith, who for more than twenty years poured her life into our schools, once said: "The relations between parent and child have changed in recent years; there is more freedom of intercourse, more comradeship, a better understanding, which, while an advantage in many ways enhances the difficulty of securing obedience." It is so much trouble for some parents to make their children obey. They would rather let things go and trust the Lord to bring all out right in due season. Faith is so much easier than works. John Ruskin one time told parents not to try to leave the child a million pounds, but to try unceasingly to teach the child *obedience;* that, if the boy did not obey nature, nature would grind him to powder. Ruskin knew her fires would burn him, her stones would crush him, her acids would consume him. She would not forgive one single act of disobedience. To give a child the gift of obedience is worth more than a million of pounds.

And let the child be taught that *character is the aim of all* life's schools and teachers. Life is not speculative. Love, duty, service, are its great watchwords. What better school could God have devised for character-building than that in which we live?—Nature with her lesson in variety, constant surprises and marvelous beauty; the home, with its joy, obligations, and affections; society proceeding from the home, till it embraces humanity at large, and makes men kin with it all, through sympathy, fellowship, and appeals for service. What power for Christian service in the uncertainty of life, in the memory of father and mother and early home, in the trust and love of one's children—in the devotion of husband and wife! by such influences God brings forth golden character from the material of ordinary lives. Let it be the prayer of old and young, "So teach us to number our days that we may get us a heart of wisdom."

Temperance.

THE "WHISKY BUSINESS" ALONG THE LINE OF PATENT MEDICINES; PERIODICALS THAT ACCEPT SUCH ADVERTISING.

Our readers are no doubt well aware that the United States government has at several different times during the past year or two undertaken a crusade against patent medicines, especially those that are but little else than intoxicating liquors with enough drugs of some kind in them to call them "medicines." Well, many of you have been a little perplexed and surprised to find that nothing came of it. A recent number of *Collier's Weekly* turns on a search-light that explains these matters somewhat. The patent-medicine men have formed a sort of combine. The people of the United States at this time pay something like $100,000,000 a year for these medicines. It is an expensive way of getting whisky, it is true; but it is an avenue through which respectable people can get it and take it day after day. The manufacturers admit that they get awful prices for their whisky tinctures; but they excuse themselves by saying the expense of advertising is so great they can not sell cheaper. Yes, the expense of advertising *is* great. *Collier's Weekly* says that, of the $100,000,000 that our people give for whisky alone in this shape, at least $40,000,000 of it goes to newspapers and magazines that advertise the stuff. The medicine men pay spot cash, and make big contracts, as you may see, probably, by looking into *your family paper*. Now, Collier's expose is this: In consideration of getting this good big fat advertising, the publisher of the paper signs a contract to see that nothing gets into his paper in the reading-columns, or anywhere else, derogatory to the medicine business, or that might injure the sales of peruna, swamp root, or whatever name the stuff masquerades under; then when an outraged public or even our government undertakes to ventilate this matter it is suppressed. *Collier's Weekly* says that one Cleveland daily lost $18,000 in 48 hours by forgetting or ignoring their contract with the medicine men not to expose their nefarious business.

Now, then, friends, the periodicals of our land are lining up. Those like *Collier's Weekly*, *McClure's*, GLEANINGS, etc., that refuse to accept medicine advertisements of any kind, can speak out and warn the public, without disastrous losses. All the others—those that advertise these nostrums—are mum. There is a padlock on their lips. But this is not all. That contract, a copy of which is given in *Collier's Weekly*, binds these publishers by plain words to defend the use of alcoholic medicines; and you will see these periodicals coming out now and objecting to the crusade that is being started. One periodical that comes into our home, that I have always valued highly, not only advertises patent medicines, but defends their use. They say it is cheaper to buy the medicine at the drugstores than to go to the doctor. It says you are more apt to get pure unadulterated medicine if you get it already put up with fancy wrappers, etc. Peruna is made right near our home. The testimonials for it read much like those for Duffy's malt whisky, and yet the victims of alcohol and morphine are all around us. Some time ago one of the boys in our establishment felt bad, and got his eye on a peruna advertisement. It made him feel better, of course; but pretty soon he got to taking it, bottle after bottle. Nobody knew about it until he became unfit for work, and had contracted a habit that it may be hard to break away from. The State of Ohio is shutting up the saloons at a pretty good jog; but it is driving a certain class to the use of patent medicines. These medicines are also taken by educated and intelligent people who ought to know better—people who would be ashamed of having it said they drank whisky, beer, or even wine; and almost before they know it they find themselves bound with iron chains to alcohol, opium, cocaine, or some other vile drug. What shall we do? Tell the publishers of your home paper that you want a periodical that does not advertise peruna, Duffy's malt whisky, nor medicines of any kind. If they pay no attention to your suggestion, you can be pretty sure their hands are tied by the patent-medicine syndicate.

HIGH PRESSURE GARDENING

A. I. ROOT

MULCHING FRUIT-TREES, ETC.

The *Rural New-Yorker* especially, and other agricultural papers, have been discussing for the past two years the mulching of fruit-trees instead of cultivation. Our Ohio Experiment Station has made some experiments, and they report very favorably regarding the mulch — that is, where there is sufficient to keep down weeds and keep the ground moist. When I visited the station in June I saw a heavy stand of clover cut and put around young fruit-trees. They reported great benefit, especially in winter. Mulched trees passed the severe winter apparently without injury, while those where the ground was left bare, and cultivated clear up to the time of freezing, were either killed outright or badly crippled. Well, I have been managing my peach-orchard in Northern Michigan on the mulched plan. One of my neighbors one day suggested that, if we should have a dry time, and fire should get into my orchard, the mulch I had around the trees would kill every one of them. Some time afterward I was burning a stump that had been in my way. It was during a dry spell in September. A heavy wind came up, and the sparks were blowing quite lively. Mrs. Root was in the hammock, a few rods away, and she said she would keep watch. She fell asleep, however, and was awakened by a crackling noise. Sure enough, the sparks had got into the mulch around one of my choicest early cherry-trees. In fact, in was the handsomest and most thrifty-growing tree on the place. I had often admired it and pronounced it a model tree in every respect. Mrs. Root at once jumped out of the hammock in double quick, and got a pail of water from the kitchen; but one pailful did very little good. By the time she got back the second time the big pile of dry mulch was going almost as before, and about the same with the third pailful. Just as she had exhausted all the water around the house she got the fire out, but she was so out of breath she said she could hardly stand up. Some of the lower branches of the tree shriveled up, but we are in hopes it will come out all right in the spring.

I have related the above as a caution. A mulch of almost any sort of stuff that will keep down weeds and keep the ground moist is a splendid thing, but you want enough of it to go out as far as the outermost branches of the tree. Those Hale's Early peach-trees near the door were in a heavy sod of June grass; but the generous mulch I piled around them killed the grass entirely, and kept the soil moist, even during the drouth. My peach-trees are only a rod apart, and planted like the cells of a honey-comb. If fire should get into the orchard, and get well agoing, I presume it would probably kill every tree.

Trials at the different experiment stations seem to be rather in favor of cultivating the ground, especially around young trees, where it is done often enough; and as no cultivation is needed after July, under some circumstances this might be less trouble in an orchard than the mulch plan. When it comes to wintering, however, I think the mulch will generally be found ahead. But before you go into it, it may be well to consider the chances of fire getting in when nobody is around.

The above was prompted by the following, which I clip from the *Rural New-Yorker:*

> The worst danger in a mulched orchard is fire.

HEALTH NOTES

BY A. I. ROOT

SUN BATHS, AIR BATHS, AFTER-DINNER NAPS, ETC.

Dear Mr. Root:—I have been a silent reader of your Home and Health papers for some time. I do not wish to take any exception to the general trend of your ideas, nor to question in any serious degree the correctness of your instructions; but I have wondered a number of times if you meant them for such as I. I am a member of that large and useful company, the wage-earners My capital consists of hands and brain, and my resources the time during which I can put them to use. The chief difference between you and me is that I must regulate my hours, habits, and private affairs to conform to my work, while you can make any division of your time you wish. The most serious fault I can find with your writings is that you apparently wish to help the common people; but, very few can follow your teachings under the conditions they must maintain

You will agree with me that it would be ridiculous for the men in your institution to take an after-dinner nap, a sun-bath, and many other equally nice treatments you have recommended. Of course, you did not mean to be taken that way; but really I do not know just how you do want to be understood. Would you be kind enough to outline a program for me allowing for my work from 6 A.M. to 5:15 P.M.? I must sleep, eat, give the necessary attention to my family and myself. Of the many things you have mentioned as essentials to a successful life, which do you recommend to me, and show in your program how I am to avail myself of them? Please do not forget that I am an *employee*, and the law of every really faithful employee is, "Seek ye first efficiency for your employer, and his approval, and all else shall be added unto you." This often means, besides so many hours a day, the devotion of spare hours to the interests intrusted to me.

I am not writing this as a dissatisfied unhappy slave to circumstances, for I enjoy living and working as much as you do; but out of sympathy for those who are even less fortunate than I, and who welcome assistance to a higher plane of living. B. E. ECKARD.

Medina, Ohio, Oct. 28, 1905.

Before answering the above I wish to explain to our readers that it comes from our chief engineer of steam, electricity, etc.—a man of talent, judgment, and education. In answering him I shall have to say that my suggestions are mainly in line for elderly people, or for anybody who feels that his health is failing. One who is in the prime of life and in good health, and who is required to put in the number of hours friend Eckard does, can well be excused from many of the things I would recommend for an invalid. I would, however, recommend everybody to get as much fresh air as possible, and arrange things in the home so that frequent baths can be taken with as little trouble as possible. If the sun baths can not be taken on week days, or if it is next to impossible to get out in the sunshine during week days, I would endeavor to get as much sunshine as I could on Sunday. Comparatively few people are required to work 7 days in the week. In fact, all kinds of business should be so arranged as to permit every employee to give reasonable consideration to the matter of preserving health. Your version of my old favorite text has a lot of truth in it; and if your employer is a godly man he will surely see about the "things to be added." One of them is a reserve man who can take your place during emergencies. If there is no such man about the establishment, urge upon your employer the need of having somebody to take instructions in view of sickness and death that are likely to occur to anybody.

You ask which, in my opinion, is most important of the things we have been talking about. In my case it is the after-dinner nap. In fact, I suffered for years from a sort of nervous prostration before I found out that a nap of fifteen or twenty minutes would cure it every time. When one feels that his health is giving way along the lines I have suggested, he can usually make some arrangement with his employer, especially if he is a valuable hand, so the matter can be arranged to the satisfaction of both parties; and it often will not be any more expensive or difficult than to drop off entirely and pay a doctor's bill besides. There is quite a movement in the large cities at this very time for only eight or nine hours a day.

I often eat my dinner, and get my nap besides, inside of an hour. An hour and a quarter is better, however, and an hour and a half gives me all the time I could ask for. The sun baths, air baths, and pure air can generally be managed with less trouble than the half-hour's sleep after dinner.

Mr. Eckard handed us the following, saying he would like to have it put before our employees. It is taken from the *Technical World* for August.

HORSE SENSE.

If you work for a man, in heaven's name work for him.

If he pays you wages that supply you your bread and butter, work for him, speak well of him, think well of him, stand by him, and stand by the institution he represents.

I think if I worked for a man, I would work for him. I would not work for him a part of his time, but all of his time. I would give an undivided service or none.

If put to the pinch, an ounce of loyalty is worth a pound of cleverness.

If you must vilify, condemn, and eternally disparage, why, resign your position; and when you are outside, damn to your heart's content. But, I pray you, so long as you are a part of an institution, do not condemn it. Not that you will injure the institution — not that — but when you disparage the concern of which you are a part you disparage yourself.

And don't forget — "I forgot!" won't do in business.

ELBERT HUBBARD.

The sermon given in this issue in Our Homes was preached in the Medina Congregational Church, Oct. 22, 1905. The subject was, "The Relations of the Home to the Public Schools."

THE WRIGHT BROTHERS' FLYING-MACHINE TO DATE; FLYING 24 MILES IN 38 MINUTES.

Our readers' attention is called to the articles in regard to the Wright Brothers' flying-machine in our issues for Jan. 1 and 15, 1905; also to the italics on page 1202 in our last issue. I have *now* permission to give you some further particulars. A great number of long flights were made during the past summer. Along late in the fall the machine made 24 miles, and was up in the air 38 minutes; and as this flying was all done in a circle, the speed was not as great as it might have been in a straight line. The reason why they have made no longer flights, say from one city to another, is because they are following the policy they adopted in the beginning, of working slowly and safely. This longest flight did not extend much outside of the inclosure I have described, where the building is located for storing the machine. For several reasons it is quite desirable that the apparatus should be put back in the house built for it, after every flight; and if they ventured very far away from where it is located there might be difficulty in getting it over fences or along highways.

In making these circles of about one mile in circumference they did not choose to go higher than perhaps 75 or 100 feet from the ground. In order to test the machine fully in case of accident the engine was shut off repeatedly while under full speed, and at a considerable height from the ground. There is no difficulty at all in alighting on any tolerably smooth field (that is, a field tolerably clear of trees, bushes, stumps, etc.) without accident to the machine or operator; in fact, they can strike ground at a speed of 40 miles an hour without injury. They even consider it safer to alight at a pretty fair speed than to drop straight down without speed. The reason why they stopped at the end of 38 minutes was because their reservoir of gasoline held only enough for that length of time; but as they carried along about 40 lbs. of cast iron for ballast, the machine is amply capable of carrying gasoline enough for an hour or perhaps two or three hours. As nearly as I could find out, the amount of gasoline required to run it is but little if any greater than is required for a two-passenger automobile. You see it is easier work *sliding on the air* than traveling over our best macadamized roads.

No one at the present time knows just what the outcome is going to be of this new achievement in the line of air navigation. I hope the friends who write me in regard to the matter will bear in mind that this apparatus has no balloon nor gas-bag of any sort. It can be started at any time almost as easily and as quickly as you start an automobile.

I am not at liberty to answer questions in regard to its construction more than I have given already, so there will be no use of writing me in regard to it. Until now they have endeavored to keep the matter from being mentioned in the papers as much as possible. These workers in this new field have not desired publicity.

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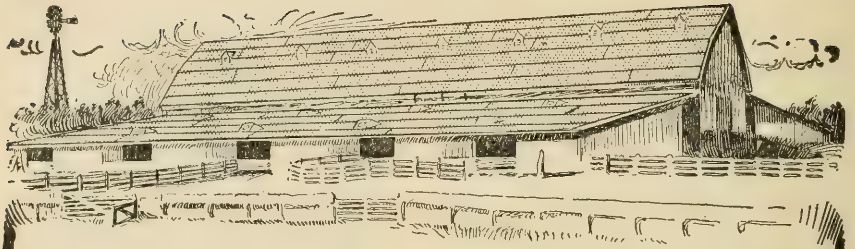

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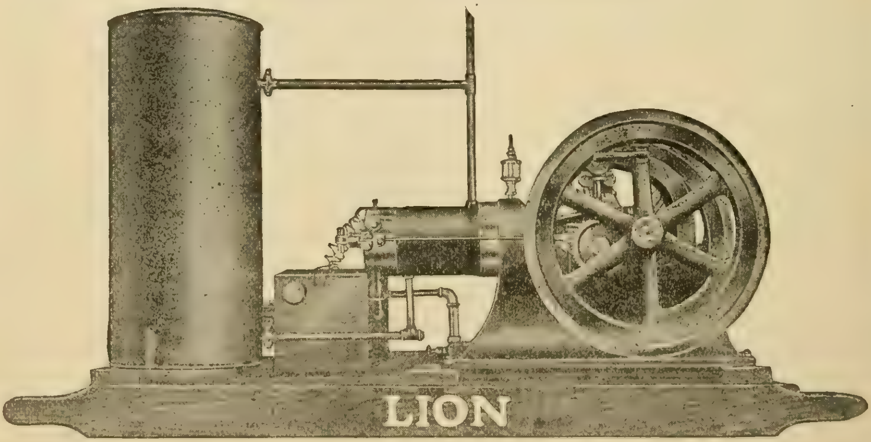

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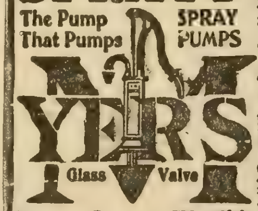

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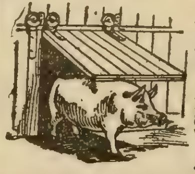

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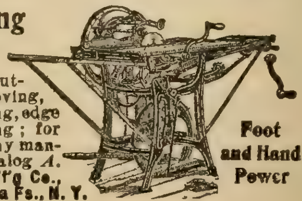

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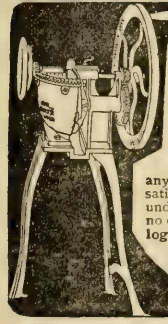

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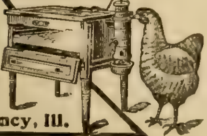

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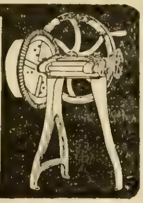

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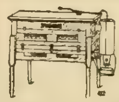

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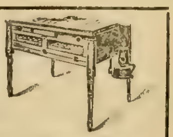

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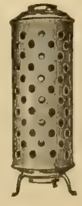

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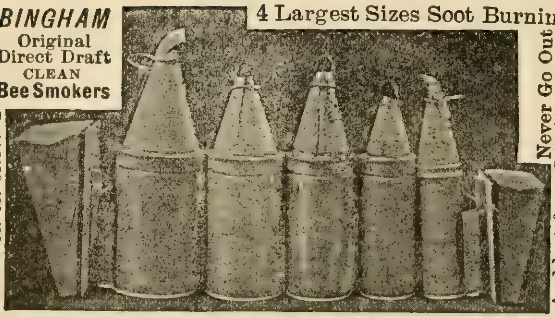

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Prices—$1.50; $1.10; $1.00; 90c; 65c by mail on receipt of price.

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26c cash, or 28c when taking bee-supplies in exchange, delivered here.

8 per cent DISCOUNT
IN NOVEMBER

I. J. STRINGHAM,

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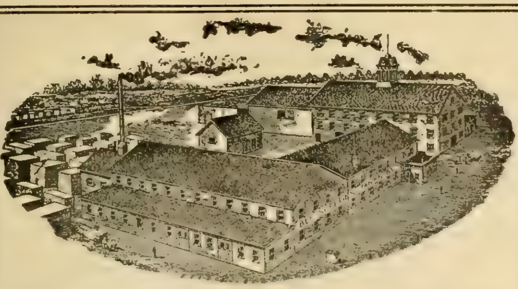
Furnishes everything in the line of
BEE-KEEPERS' SUPPLIES and BEES.

12-ounce round jars, NICKEL CAPS, $3.75 per gross.
No. 25 jar, nickel or porcelain cap, $4.50 per gross.
1-pound square jars, with corks, $5.00 per gross.
Catalog free.

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.



Kretchmer Manufacturing Company
Council Bluffs, Iowa

BEE-SUPPLIES!

We carry a large stock and the greatest variety of every thing needed in the apiary, assuring BEST GOODS AT LOWEST PRICES, and prompt shipment. We want every bee-keeper to have our free illustrated catalog, and read description of Alternating Hives, Massie Hives, etc. *Write at once for catalog.* :: :: ::

DISCOUNTS for EARLY ORDERS

DEALERS IN OUR GOODS

Trester Supply Company, Lincoln, Neb.
Shugart & Ouren, Council Bluffs, Iowa,
I. H Myers, Lamar, Colorado.
Southwestern Bee Co., San Antonio, Tex.

DITTMER'S FOUNDATION IS THE BEST!

Now is the time to prepare for next season **If you want to save money** on Foundation, working Wax for cash, and on a full line of Supplies. Write for prices, discounts, and samples of our Superior Foundation.

E. Grainger & Co., Toronto, Ontario, - - Agents for Canada.
The Bee & Honey Co., Beeville, Texas, - - Agents for Texas.

GUS DITTMER, -- AUGUSTA, WIS

BEE - SUPPLIES

Distributing-house for Lewis' Goods, Dadant's Comb Foundation, etc., at Factory Prices. . . . .

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before January, 7 per cent discount.

FINE EXTRACTED HONEY » » »

The best the world can produce. Sample sent, 8 cents. Haw much can you use? *We always buy beeswax.* Catalog and "Special" free.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

Sections and Hives!

No. 1 sections, $3.75; No. 2, $3 25. 1½-story 8-frame L. hive (rabbeted), 95 cts.; Dovetailed, same, $1.25. Foundation at reduced price. Dittmer's Michigan agent. Send for my 24-page illustrated catalog free.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

RAW FURS ONE MILLION WANTED

Am authorized to pay fancy prices to fill European orders. Write for my special quotations. Address

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WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases**, and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

"ESTABLISHED NEARLY TWENTY-FIVE YEARS"

LOWEST PRICES

BIG DISCOUNT - EARLY ORDERS

On cash orders before November 1....9 per cent
" " December 1....8 per cent
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BEE-SUPPLIES

OF ALL KINDS

We have published *The American Bee-keeper* for 15 years (monthly, 50c a year); the largest and best illustrated magazine of its kind for the price published; edited by two of the most experienced bee-keepers in America. Sample copy free. Our large illustrated price list of supplies free on application. Address ::: ::: ::: :::

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PAGE & LYON
NEW LONDON, WISCONSIN

Manufacturers of and Dealers in

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SUPPLIES

Seven per cent Discount during December on all Orders Accompanied by Cash

Send for Our FREE
New Illustrated Catalog and Price List

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

November 1	9 per cent	February 1	6 per cent
December 1	8 per cent	March 1	4 per cent
January 1	7 per cent	April 1	2 per cent

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

A Farmer Says

Some good words about our Booklet on Farm Telephones.

"Sweet Valley, Pa., Aug. 15, 1905.
Stromberg-Carlson Tel. Mfg. Co.,
Gentlemen:—Your booklet reached me safely. You have many valuable and timely suggestions, and I only hope that it may find its way into every locality that does not have the advantage of telephone service. THERE IS NO ONE THING AT THIS TIME DOING MORE TO BRING THE FARMER ON AN EQUAL FOOTING IN BUSINESS, EDUCATION AND CULTURE, WITH HIS URBAN BROTHER, THAN THE TELEPHONE.

As we have two well constructed, thoroughly equipped, successfully operated telephone lines in this locality, one known as the Lake and Lehman Telephone Co. and the other The Farmers Telephone and Supply Co., I can do no more than to wish you success. Sincerely yours,
A. E. Lewis."

What Mr. Lewis says about the value of the telephone in the Farm Home is seconded by all farmers after they have once enjoyed the privilege of telephone service.

We have several booklets which will tell you how to get a telephone line started in your community and how to buy telephones and construction materials to the best advantage. Ask for our booklet 36 B, "How the Telephone Helps the Farmer." We will send you a copy by return mail.

STROMBERG-CARLSON TEL. MFG. CO.
Rochester, N. Y. Chicago, Ill.

Chas. Israel & Brothers
486-490 Canal St., New York.
Wholesale Dealers and Commission Merchants in
Honey, Beeswax, Maple Sugar and Syrup, etc
Consignments Solicited. Established 1875.

WANTED.—Beeswax. We are paying 26 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price.
THE A. I. ROOT COMPANY, Medina, Ohio.

SPECIAL RENEWAL OFFERS

How to Get Gleanings or A B C of Bee Culture Free

During the next few months the bulk of GLEANINGS subscriptions will expire. Look at the date on your label and see if you are not one of them. If you are we want you to renew, so are making some very liberal offers by which you can advance your subscription without cost by doing a little work for us. Carefully read over the offers below. You surely have friends who ought to take GLEANINGS, and by obtaining their subscriptions you advance your own.

OFFER A.—We will advance your subscription to GLEANINGS three months free of charge for every trial subscriber you obtain for us at the rate of six months for 25 cents, new names only.

OFFER B.—Send us $1.00 for a year's subscription of a new subscriber, and we will advance your own subscription 6 months free of charge.

OFFER C.—Send us $2.00 for two one-year's subscriptions to GLEANINGS and we will advance your subscription one year free of charge, providing that one of the two year's subscriptions is for a new subscriber; the other can be a new name or a renewal for yourself or a friend.

OFFER D.—Send us $3.00 for three one-years' subscriptions to GLEANINGS and we will advance your subscription two years free of charge, providing that at least two of the three one-year's subscriptions are for two new subscribers; the other may be a new name or a renewal for yourself or friend.

OFFER E.—A copy of the 1905 edition, cloth-bound A B C of Bee Culture can be substituted for a year's subscription in Offers C and D, providing 20 cents extra is sent for postage.

THE A. I. ROOT CO.
Publishers
MEDINA, OHIO

CO-OPERATION

Means—you work for me and I work for you for Mutual Benefit

A well known manufacturer wishes to cash $2000 worth of goods during

DECEMBER

He has made me the lowest prices I have been able to secure in years, viz.:

The 8-frame Dovetailed hive, 1½-story, at 90 cts. each any frame, any cover, etc.; 10-frame, $1.00.

No. 1 white basswood standard-size sections, at $3.15 per 1000; No. 2, $2.65 per 1000.

I will take you, Mr. Bee-keeper, into partnership. There are three conditions, viz., 1st—Cash to reach me not later than Dec. 29, 1905. 2d—You subscribe for Rural Bee-keeper one year, $1.00. 3d—You pay me a commission for my services, viz., 10 per cent on all orders for $50 or less; 8 per cent on $50 to $100; 7 per cent on $100 to $200; 6 per cent on $200 to $300; 5 per cent on $300 to $500; 3 per cent on $500 to $1000; 2½ per cent on all orders over $1000.

No catalog. Prompt shipment. Money refunded in case all are sold. No risk.

W. H. Putnam, River Falls, Wis.

The National Bee-Keepers' Association.

Objects of The Association.

To promote and protect the interests of its members.
To prevent the adulteration of honey.

Annual Membership, $1.00.

Send dues to the Treasurer.

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CHARLES SCHILD CO., 1 Frankfort St., Cleveland, O.

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go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes. . . .

The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

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The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry. . . . .

The Advertiser looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals.* . . . .

Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

The Howard Publishing Co.
714 12th St. N. W., Washington, D. C.

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To accommodate the large number of people who keep money at home, or in a local bank where it is earning little or no interest, this bank receives deposits by mail on exactly the same terms as though made in person. Deposits may be sent safely by postoffice or express money-order, New York draft, check on local bank, or currency. We will on request write you how you can bank safely and conveniently by mail, no matter where you live.

The SAVINGS DEPOSIT BANK COMPANY
Medina, Ohio

ASSETS OVER HALF MILLION DOLLARS
A. T. SPITZER, Pres.
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The bank that pays 4 per cent

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you need to be as careful as about your food. You'll be safe and comfortable if you use

WILLIAMS' SHAVING SOAP

Sold everywhere. Free trial sample for 2-cent stamp. Write for "The Shavers Guide and How to Dress Correctly."

The J. B. Williams Co., Glastonbury, Conn.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

HONEY QUEENS

Another car of bees offered for next season. Plenty of fine queens on hand at all times. Laws' Italian and Holy Land queens—the best bees on earth for business. Single queen, $1.00; six for $5.00. I can mail queens any month in the year. Eight-frame hive complete in the flat, 60c; 1½-story, 80c; full-depth supers, 26c; Hoffman frames, $15.00 per 1000. Hives made this winter only; but few orders will be accepted after March 1st.

W. H. LAWS, - - Beeville, Texas.

Virginia Queens

Italian queens secured by a cross, and years of careful selection from red-clover queens and superior stock obtained from W. Z. Hutchinson. Untested queens, 75c—after June 15th, 60c; tested queens, $1.00—after June 15th, 75c; selected tested queens, $1.25—after June 15th, $1.00. Write postal card for circular.

CHAS. KOEPPEN, Fredericksburg Va.

PURE ITALIAN QUEENS.—From red-clover and five-banded breeders. Untested, 75c; select untested, $1.00; tested queens, $1.50; select tested, $2.50. Safe arrival guaranteed.

H. M. PARKER, JR., James Island, S. C.

CARTONS

Folding style for 4¼ sections, 1½, 1⅜, 1⅝, 1¾ inch wide, so long as they last, at $4.00 per 1000. . . Three-inch glass for shipping-cases at $10.00 to $15.00 per 1000 sheets. No more queens for this season, but instead we can sell you comb and extracted honey.

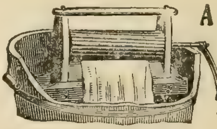
QUIRIN-THE-QUEEN-BREEDER
BELLEVUE, OHIO.

Trees, Plants & Seeds THAT GROW

Best quality. Good bearers. Low prices. Apple 4c; Plum and Cherry 12c; Peach 4c; all budded; Concord Grapes 2c; Forest Tree Seedlings $1 a 1000 up.

GERMAN NURSERIES
Carl Sonderegger, Prop.

Tested seeds very cheap. Freight paid on trees. Catalogue, English or German, free. Write for it today. Address GERMAN NURSERIES, Box 33 Beatrice, Neb.



A PERFECT WASHING

with all the dirt out, and with one fourth the labor, if done with THE BUSY BEE WASHER. Does the rubbing for you. Fits any wood tub. So cheap you can't afford to do without it. Agents Wanted. Write for terms.

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OUR SPECIALTIES

Cary Simplicity Hives and Supers;
Root and Danzenbaker Hives and Supers;
Root's Sections, Weed Process Foundation,
Bingham Smokers;
Bees and Queens in their Season;
Thirty-two-page Catalog Free.

W. W. Cary & Son, Lyonsville, Mass.

Now's the Time to Order

Your bee-hives, sections, shipping-cases, berry-boxes, and crates for the coming season. By sending us a list of goods wanted we can save you money. :: ::

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A large 16-page, carefully edited farm, fruit, stock, and home paper; departments devoted to every rural industry; everything "plain, practical—seasonable and sensible." It tells how just when you want to know. Its subscribers say they "would not be without it for ten times the subscription price." The recognized agricultural authority of the Mississippi Valley. We want to introduce it into thousands of new homes this year, and—figuring on a basis of actual cost—offer it at just one cent per copy. Thus, being a semi-monthly, 24 cts. will pay for one year; or send 10 one-cent stamps, and you will get the next 10 numbers. Can you afford to let this grand offer go by?

Send in your name at once, and—if you will, kindly—add a few names of your farmer neighbors, for free sample copies, and you will greatly oblige

Barnum's : Midland : Farmer
W. M. BARNUM, EDITOR
Allen Building, St. Louis, Mo.

Advertising Rates: 2 cents a word, cash with order.

Our Syracuse, N. Y., Branch

is prepared to ship promptly all Bee-keepers' Supplies, giving the same discount as Medina.

The A. I. Root Co., Syracuse, N. Y.

F. A. Salisbury, Manager.

We Sell Root's Goods in Michigan.

One, Two, Three, FOUR

months to April; one, two, three, four, five, six, SEVEN per cent discount for cash orders this month. No discount after March 31st. Figure it up, and find the interest per annum on your money. And then—— send in your order for supplies, and SAVE MONEY.

"AND THEY'RE ROOT'S GOODS, TOO."

Remember the Danz. Hive --the Comb-honey Hive.

M. H. Hunt & Son
Bell Branch, Michigan
Near Detroit

7 PER CENT DISCOUNT IN DECEMBER

We have arranged the following discounts for early

CASH ORDERS

this season:

Before January 1	7 per cent	
" February 1	6	"
" March 1	4	"
" April 1	2	"

DEALERS.—A partial list of dealers (wholesale and retail) in Root's goods will be found on the first inside cover page of this issue. A list of local dealers may be had by writing us at Medina. Save time and freight by ordering of the dealer nearest you.

These discounts are intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on orders for the following articles exclusively; but where these form no more than about ten per cent of the whole orders the discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books and papers, labels, and other printed matter; bushel boxes, seeds, and other specialties not listed in our general catalog. ... ...

THE A. I. ROOT CO.

FACTORY AND EXECUTIVE OFFICE

MEDINA, OHIO

BRANCHES

Chicago—144 E. Erie St.
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St. Paul—1024 Miss. St.
Washington, D. C.—1100 Maryland Ave.
Havana, Cuba—Obrapia 14.
Kingston, Jamaica—115 Water Lane.
Agencies everywhere—see the first inside cover page.

BEE-KEEPERS' EARLY DISCOUNTS

Now is the time to send in your order for goods for use next season, and for all orders where cash accompanies we allow the following discounts: : : : :

Before January 1	deduct 7 per cent
Before February 1	deduct 6 per cent
Before March 1	deduct 4 per cent
Before April 1	deduct 2 per cent

Freight rates from Toledo are the lowest. Can take honey and beeswax in exchange for supplies if you desire. Send for free illustrated catalog. It describes and illustrates every thing for both poultry and bee keepers. . .

GRIGGS BROTHERS

523 Monroe St., Toledo, O.

Dadant's Foundation

It Excels. We Guarantee Satisfaction.

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BIG DISCOUNTS

FOR EARLY ORDERS

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BEE-SUPPLIES OF ALL KINDS

BEESWAX WANTED AT ALL TIMES

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DADANT & SONS

HAMILTON, ILL.

VOLUME XXXIII NUMBER 24

CHRISTMAS - 1905

GLEANINGS IN BEE CULTURE

THE A. I. ROOT CO.
MEDINA, OHIO, U. S. A.

H. McF. Co. Harrisburg, Pa.

EASTERN EDITION

ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND-CLASS MATTER

MONEY in BEES for YOU

Investigate. Catalog free. New England bee-keepers will find at my store

IN BOSTON

A full line of the finest bee-supplies in the country. I also furnish queens, and bees by the full colony or nucleus. Best shipping-center for New England; promptness, carefulness, and satisfaction go with every shipment. Try me.

F. H. Farmer - Boston, Mass.
Up First Flight, 182 Friend St.

Our Specialties

Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season.
32-page Catalog Free.

W. W. Cary & Son,
Lyonsville, Mass.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog I.

Rawlings Implement Co.
Baltimore : : : Maryland

NORTHEASTERN & NEW ENGLAND
BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

MISSISSIPPI

The bee-keepers of Mississippi and other nearby States will do well to get my catalog before ordering. I carry a full line of supplies, and give prompt attention to all orders.

Bees and Queens
from Select Stock

Correspondence Solicited.

GEO. A. HUMMER,
BRAZELIA, - MISSISSIPPI
Shipping-point, Macon

DON'T WAIT

Send in your order now. Have your supplies on hand when you need them. **Delay means loss.**

Root's Goods
AT
Root's Prices

F. O. B. Dubois, wholesale and retail. We make prompt shipments, and have the best shipping facilities. **CATALOG FREE.**

PROTHERO & ARNOLD,
DUBOIS, Clearfield Co., PENNA.

C. H. W. Weber,

Headquarters for

Bee-Supplies.

Distributor of Root's Goods Exclusively at Root's Factory Prices

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price-list. It will be mailed you promptly FREE of charge.

Seven per cent Discount

For Cash Orders Received in December

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel lots, or car lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, and CARNIOLANS. Can furnish NUCLEI beginning of June. For prices refer to catalog, page 29.

I have in stock, seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

Fancy.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The demand for comb honey is relaxing to some extent, owing to the majority of the trade being well supplied. All fears of a comb-honey famine have been allayed. We quote fancy white comb honey at 14 to 16. Extracted honey is in fair demand. Quote amber at 5¼ to 6½, according to the package and quality. Fancy white and white-clover extracted honey brings 6½ to 8½. We are paying 28½ delivered here for choice yellow beeswax. We wish to call the attention of the producer to the above quotations, who mistakenly expects to receive these prices for his product. The above are our selling prices for honey.

The Fred W. Muth Co.,
Dec. 5. 51 Walnut St., Cincinnati, O.

MILWAUKEE.—The supply of fancy comb honey is very moderate on this market at this time, and some old crop is yet on hand, and is hard to sell; but it will work off in the absence of a full supply of new crop, which demands much better values, and also sells slowly in consequence. Extracted is in fair demand, and has sold well on this crop, and will sell from this on. We think shipments will do well, especially for white clover or linden, although a demand exists for all grades. We quote: Fancy 1-lb. section, new, 14 to 16; fancy 1-lb. section, old, 10 to 11; inferior, white or dark, old, 8 to 9; extracted in barrels, cans, pails, and kegs, white, 7½ to 8; dark, 6 to 7. Beeswax, 28 to 30.

A. V. Bishop & Co.,
Dec. 1. 119 Buffalo St., Milwaukee, Wis.

ATLANTA.—The shortness of the honey crop is beginning to be felt rather sharply in this section, and we are feeling some difficulty in filling orders. We quote: Fancy white, 12½ to 14; A No. 1, 11 to 12½. Beeswax, brisk at 27½ to 30. Judson Heard & Co.,
Dec. 6. Atlanta, Ga.

KANSAS CITY.—The honey market is rather dull here on account of being well supplied with California honey. Fancy white comb honey, 24 sections, is selling at $3 25 per case. Fair demand for extracted at 6 to 6½. Beeswax, 25. C. C. Clemons & Co.,
Dec. 7. Kansas City, Mo.

NEW YORK.—The demand for comb honey continues to be fair for all grades. Prices practically remain the same. We quote fancy white at 14 to 15; No. 1 at 13; No. 2 at 12, and buckwheat at 10. Extracted honey is in good demand, especially California, with large supplies. We quote white at 6½ to 7; light amber, 6; buckwheat extracted, 5½ to 6; Southern at 50 to 60 cts. per gallon, according to quality. Beeswax is firm and steady at 29 to 30. Hildreth & Segelken,
Dec. 6. 265-7 Greenwich St., New York.

TOLEDO.—The market on comb honey remains firm, and the receipts are not quite equal to the demand. We quote fancy white comb, 15 to 16; No. 1, 14 to 14½, with little demand for amber. Extracted white clover, good demand at 6 to 6½; cans, 7 to 7½. Amber in barrels, 5 to 5½; cans the same. Beeswax, firm at 28 to 29. The above are our selling prices. Griggs Bros.,
Dec. 7, Toledo, Ohio.

BOSTON.—We quote: Fancy white, 16; A No. 1, 14 to 15; No. 1, 14; No. 2, 12 to 13. Extracted, 6 to 8, according to quality, with a fair demand. The very large quantities of honey carried over from last season are undoubtedly affecting the sale and prices.

Blake, Scott & Lee,
Dec. 9. 31-33 Commercial St., Boston, Mass.

DETROIT.—Honey in good demand, and very few or no large lots are offered. Fancy and A No. 1, 14 to 15; No. 1 and No. 2, 12½ to 13; dark, A No. 1 and No. 1, 11 and 12. Extracted, 7 to 7½ for white. Beeswax, 26 to 28.

M. H. Hunt & Son,
Dec. 9. Bell Branch, Mich.

ST. LOUIS.—There is a brisk demand for all grades of new comb honey, as this market is almost bare. We quote: Fancy white, 15 to 16; No. 1, 13 to 14; amber, 12 to 13. Extracted: The arrivals have been very liberal from California. Light is quotable at 6 to 6½ in five-gallon cans; white, 7; Southern, 5 to 5½ in barrels, and 5½ to 6 in cans. Beeswax, 28. R. Hartmann & Co.,
Dec 7. 14 South Second St., St. Louis, Mo.

SCHENECTADY.—Up to present time the demand for both comb and extracted honey has been good; but we expect the usual falling-off during the holiday rush. We quote fancy white, 14 to 15; No. 1, 13 to 14; mixed grade, 11 to 12; buckwheat, 11. Extracted, light, 6½ to 7½; dark, 6 to 6½. The latter is in best demand.

Chas. McCulloch,
Dec. 6. Schenectady, N. Y.

CHICAGO.—The trade in best grades of white comb honey has been fair, yet retailers take only small amounts at a time. This honey brings 14 to 15; other grades are difficult to place at from 1 to 3 cts. per lb. less. Extracted is selling at 7 to 7½ for white, and amber 6½ to 7; dark, 5½ to 6. Beeswax, when clean and of good color, 30. R. A. Burnett & Co.,
Dec. 6. 199 South Water St., Chicago, Ill.

FOR SALE.—500 cases of light amber extracted honey, at 5c, f. o. b. Selma, Cal. Gathered mostly from alfalfa.

O. L. Abbott, Cor. Secretary
Cal. Bee-keepers' Association.

FANCY WHITE EXTRACTED HONEY

CRATES 2-60 LB. CANS; 8c
TWO OR MORE CRATES; 7½
LARGER LOTS; WRITE FOR SPECIAL PRICES. ALL F. O. B. CINCINNATI. CASH WITH ORDER. SAMPLES 10c. TO PAY POSTAGE.

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For Sale.—Clover or buckwheat extracted honey. Write for price, and quantity desired. Sample, 10 cts. Comb honey all sold. C. B. Howard, Romulus, N. Y.

For Sale.—Buckwheat honey, in 60-lb. cans, at 6 cts.
C. J. Baldridge,
Homestead Farm, Kendaia, Seneca Co., N. Y.

For Sale.—Extracted honey—fancy white, 7 cts.; fancy amber, 6½ cts.; ¼ cent less in five-case lots or more. C. C. Clemons & Co., Kansas City, Mo.

For Sale.—Choice clover and buckwheat honey in 60-lb. cans, at 7 cts. for clover and 6 cts. for buckwheat.
G. H. Adams, Mill St., Bellevue, Schenectady, N. Y.

For Sale.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.
O. L. Hershiser, 301 Huntington Av., Buffalo, N. Y.

For Sale.—Buckwheat honey in 160-lb. kegs, 5½ cts.
Ira Wilson, Ovid, N. Y.

For Sale.—Finest quality of white sage and orange bloom honey, 6 cts. Wild alfalfa and buckwheat, 4¾ cts. Discount on large lots; all in new cans.
Frank McNay, Redlands, Cal.

For Sale.—2000 lbs. buckwheat comb, capped nearly as white as clover, 12c per lb.; extracted, 7 to 8½c, according to quantity and quality wanted. Sample for dime. Quirin-the-Queen-Breeder, Bellevue, O.

For Sale.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.
Hildreth & Segelken, 82 Murray St., N. Y. City.

Wanted.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
Hildreth & Segelken,
265-267 Greenwich St. New York.

Wanted.—Comb and extracted honey. State kind, quantity, and how put up.
Chas. Koeppen, Fredericksburg Va.

Wanted.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. Burnett,
199 South Water St., Chicago, Ills.

Wanted.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. Griggs Bros., Toledo, Ohio.

Wanted.—Comb honey; Michigan preferred.
W. D. Soper, Jackson, Mich.

Wanted.—Clover and basswood extracted honey; also No. 1 amber honey. Send sample, and state quantity and price, delivered at Preston.
M. V. Facey, Preston, Fillmore Co., Minn.

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Wanted.—Comb honey at improved prices. Write us what you have to offer.
H. R. Wrigat. Albany. N. Y.

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Wanted.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.
Evans & Turner, Columbus, Ohio.

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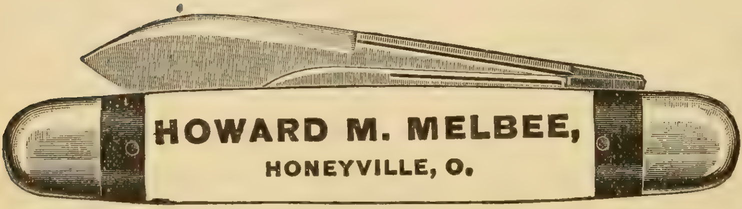

(This cut is the full size of the Knife.)

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(Name and Address on one side—Three Bees on the other side.)

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The Novelty Knife is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed the name and residence of the owner, and on the other side pictures of a Queen, Drone, and Worker, as shown here.

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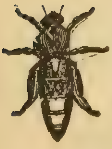

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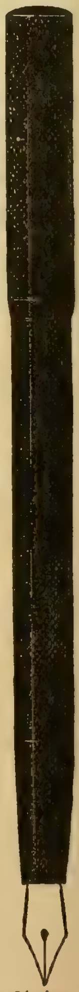

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AFTER a man succeeds in publishing a good journal, the next step is that of getting it into the hands of the people, of getting them to reading it, and becoming acquainted with its merits. This can be done by advertising, sending out sample copies, circulars, etc. All this costs money. I think I am safe in saying that for every new subscriber I have received I have paid out $2.00 in advertising; hence I have often said that a publisher of a good journal could afford to send his paper one year free, for the sake of getting it into new hands. It would cost no more than other forms of advertising, and would be very effective, but, for obvious reasons, this plan could not be put into practice, but I am going to come as near to it as I can. I have between 200 and 300 complete sets of back numbers for the present year, and so long as the supply holds out I will send a complete set, and the rest of this year free, to any one who will send me $1.00 for Review 1906.

The Review for 1905

It is impossible, in this space, to more than touch briefly upon a few points. Perhaps the leading feature for the year is a series of articles on keeping bees in large numbers.

10,000 COLONIES

in the aggregate are owned by a dozen men whose articles appear in the Review for this year. No one of these men has less than 400 colonies, and one has 1700! These men have kept bees in large numbers. They have succeeded. They have made money. They point the way for others. They tell how many colonies in the home yard will justify the starting of an out-apiary; how far apart out-apiaries ought to be located; how locations should be selected; the best methods of traveling from apiary to apiary; how hives and increase shall be secured; what kind of honey shall be produced; how to solve the swarming problem; what are the greatest obstacles, and how to overcome them.

Perhaps the one article that attracted the most attention was by H. G. Sibbald, of Canada, entitled

Ahead of Shook Swarming

The article described a method possessing the following advantages: No shaking of the bees; no handling of the brood; no possibility of the queen being in the wrong hive; no danger of after-swarming; no increase unless desired (but easy if wanted); no queen-cells to hunt up and destroy, yet the whole force of bees may be kept together the whole season, and each colony may be requeened with a queen from a naturally built cell.

There is no doubt that there are thousands of

DOLLARS WASTED

in the rendering of wax that might be saved if proper methods were employed. The best article that I ever saw on the subject was written by Mr. E. D. Townsend, and appeared in one of the issues of the Review for this year. The number of new and practical ideas furnished by him in regard to the profitable and comfortable rendering of wax will be a surprise even to the veterans. He also illustrates and describes a wax-press that any person of ordinary ability can make for three or four dollars, and it is the equal if not the superior of a high-priced, factory-made press.

TIP THE HIVE OVER

so that it will rest upon its back end, use a little smoke along the lower edges of the brood-combs, and it is an easy matter to determine if the bees are building queen-cells and getting ready to swarm The only difficulty is that the supers are likely to slide off, but Mr. F. G. Cyrenius has invented a simple, cheap clamp that can be put on the hive in five seconds, no matter how many supers there are upon it, and it will hold the supers on so securely that the hive might be rolled about the yard without their becoming loose. By this method it is an easy matter to examine 100 colonies in an hour without ever opening a hive. It was illustrated and described this year in the Review.

Advanced Bee Culture

A NEW edition of this book is now out, and, without doubt, is the most beautifully gotten up bee-book that has ever been published in this country. It is printed on heavy enameled paper, profusely illustrated with beautiful half-tone engravings, and the front cover embellished with a green vine of clover—a golden bee sipping honey from one of the snow-white blossoms.

Most important of all, however, is the simplicity and freshness, the inspiration and real *helpfulness* of its contents. From years of experience as bee-keeper and editor, I have told in plain simple language what I believe to be the most advanced methods of keeping bees for *profit*, from early spring to the end of the year. The book is almost wholly re-written, and contains nearly twice as much matter as did the former editions. In short, every man who would make the most money out of bee-keeping, as a business, *must* have the book.

The price, postpaid, is $1.20; or I will send the Review for 1906, and the back numbers for 1905 as long as the supply holds out, for only $2.00!

W. Z. Hutchinson, Flint, Mich.

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When our readers have opened this magazine we will have finished the work on the best number we have ever sent out. We will have taken a long deep breath, and have started upon the actual work of next year's Gleanings. 1905 was the best year of our history—1906 is GOING to be better. We start out with the largest list of subscribers that ever supported a bee-paper, and we are not going to disappoint them. Gleanings will be simply indispensable to you if you are interested in bees ever so little. Gleanings will give you full measure, pressed down and running over.

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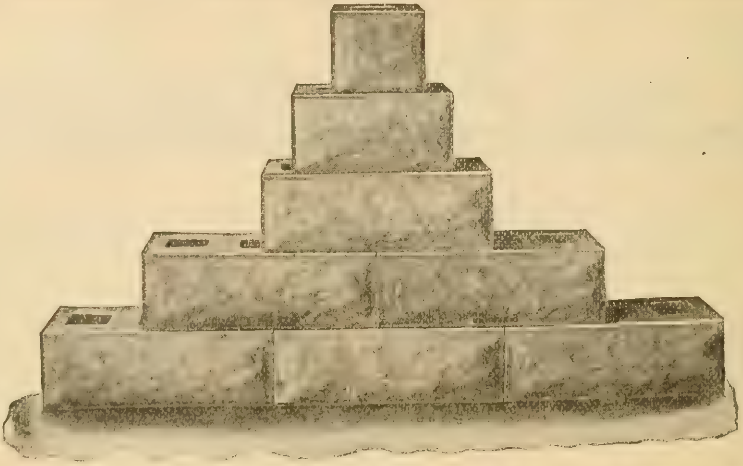

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Authorship. The book was originally written by A. I. Root, who, as far back as 1877, saw the need of a work of this kind. There are still quite a number of the articles remaining, written by himself. The general work of revision and keeping the book up to the times has devolved on his son, E. R. Root, who has probably written two-thirds of the work as it now stands.

Index. This book includes a very complete index, so that any subject or division may be easily found.

Price. In cloth, postpaid, $1.20; in half-leather, $1.75; in full leather, $2.00. If sent by freight or express, deduct 20 cts. from any of the above prices. French edition, $2.00 postpaid; Spanish edition in preparation. Gleanings in Bee Culture, semi-monthly, one year, and cloth-bound A B C, postpaid, $2.00.

TESTIMONIALS

I have recently received a copy of your A B C book, and find it more interesting than a novel.
Carthage, Mo., Sept. 14, 1905. BENJ. C. AUTEN.

Your A B C books are a credit to you, and every bee-keeper in the world should have one, and so should every person that ever intends to keep bees.
Woodburn, Ont., June 24, 1903. WM. MCEVOY.

The A B C received, and I must say it is the most interesting book I ever read. More for my dollar than any other book I ever got in my life.
Irondale, Mo., July 15, 1905. JOHN THOMPSON.

I am in receipt of the A B C of Bee Culture. I regret that I did not get it a year ago. The book is worth many times its cost, sure enough, as you said.
Salem, N. C., Sept. 14, 1900. M. I. LUMLEY.

I am enjoying reading in your book, which is really most interesting and instructive.
Enzheim, Germany. LUCIE DENNLER.

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658 Beecher St., Elmira, N. Y., Feb. 1, 1905.

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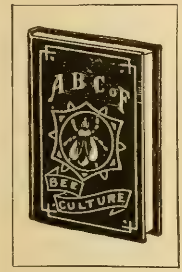

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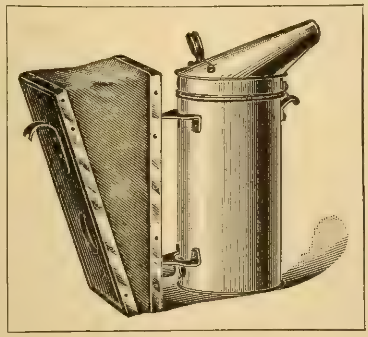

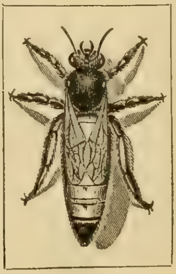

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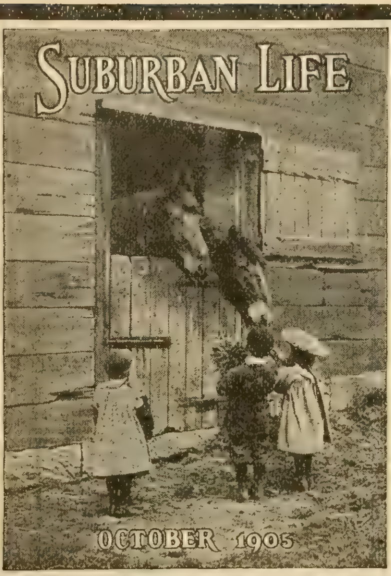

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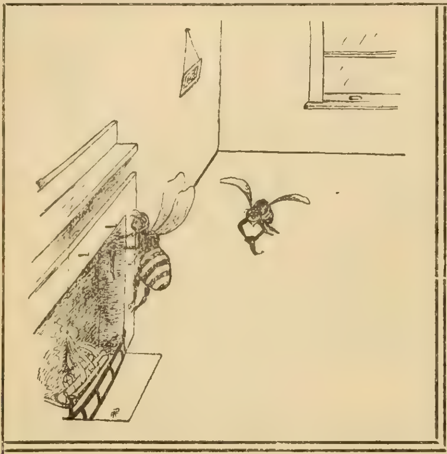

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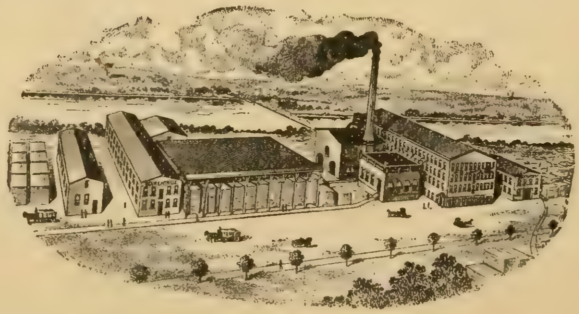

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Vol. XXXIII. DEC. 15, 1905. No 24

Stray Straws

By Dr. C. C. Miller.

Referring to that alfalfa question, p. 1241, would it not be well to emphasize the need of bees to secure alfalfa *seed?*

Look out Ernest, or you'll get a lot of Canucks after you for hinting that bees will not winter well on combs sealed clear down to the bottom, p. 1250. They're probably all right if you have plenty of room for the bees to cluster under the bottom-bars.

Latest fashion in this locality demands hay-racks as level as a floor; so this year my bees were brought home on a hay-rack, 48 hives on the floor, and 11 under it—59 at a load. Strips nailed down to keep hives apart; no hay or other packing, but a pair of heavy springs under all.

S. E. Miller, in *Progressive*, objects to calling honey "white"—wants it called "clear." Of course, we'll tell him to go and sit down in a corner and keep quiet; but when he goes off grumbling that his cistern isn't filled with white water, and asks, "Why does not the poet or novelist speak of the white babbling brook?" what under the sun can we reply to such a man?

Wm. M. Whitney, p. 1240, raises the tanging question again. As I think you are a bee-keeper rather than a naturalist, friend Whitney, I venture the remark that it is not a question as to whether bees hear; it is pretty certain that they do hear, and that they hear sounds inaudible to the human ear; but the question is whether those sounds have the slightest effect in making swarming bees cluster.

Dr. D. E. Lyon writes that not only are his Caucasians of almost incredible gentleness, but good gatherers, and good defenders of their homes. One colony took up 25 or 30 pounds of syrup in a night and part of a day. Per contra, a queen-breeder who got a queen direct from Washington speaks unfavorably of them. Are there Caucasians and Caucasians?

[Yes, just the same as there are Italians and Italians. While their reputation is most excellent for gentleness, there may be some specimens quite the reverse.—Ed.]

Is there not a difference between comb and extracted as to *early* sales? "New comb honey" is a common sign in grocers' windows, but I never saw a sign "New extracted honey."

[No, for the reason that the word "extracted" is not even yet commonly known to the public. If new liquid honey were for sale it probably would be denominated "new honey." But I suspect that locality has something to do in the matter. In your vicinity comb honey only is produced, hence you would not be likely to see the sign "New Extracted."—Ed."

Notches for spacing frames like those on p. 1249 are objectionable, but I don't believe, Mr. Editor, there would be any unequal spacing from hauling. Remember that a frame must move sidewise more than 5-8 inch before it can get into the wrong notch, and there's no need to have that much play. Even if there were so much play, it would take a tremendous jolt to throw a frame out that much.

[I do not think you quite understood. I meant that a jolt of the wagon might cause several frames to hop out of their notches, resting on the rabbet between the notches or into other notches not their own. This, however, was a minor objection.—Ed.]

Prof. Cook says, p. 1122, that Irish farmers pay $5 an acre annually for rent and taxes, and asks, "What would our American farmers do under like circumstances?" When I read that I went down to the road and asked a farmer, "What cash rent do farms bring?" He answered, "Well, rent isn't so high here as further off—maybe $4 on the average. I'm offered $15 an acre for some that's 2½ miles from town; but it's extra good new land." In the last Marengo paper I see that the Pease farm has been leased for three years at an annual rental of $5 an acre. It is five miles from town, and contains eighty acres. Good farm, but I don't know that it's better than the average.

Editor Hutchinson cellared his bees Nov. 4 to 10. Sorry—at least unless his weather has been different from mine. My bees have had a number of flying days since then. His were brought from an out-apiary, and then cellared without a flight. He thinks they don't need a flight after hauling. They may stand it, but I've always preferred hauling them home early enough to allow a flight. This year they were brought home Oct 19. Next day they flew as in a first spring flight while the bees in the home apiary remained quiet. What but the hauling made them need that extra flight?

E. W. Alexander, p. 1238, says, "No man ought to bother trying to produce honey in a poor location," and I suppose any thing less than a fairly good location is counted poor. His "fairly good location" is one where, with the best management each colony, spring count, yields an average net income annually of $21.25. If his view should prevail, the business would be revolutionized, for so few would be left in the business that prices would go skyward, and none but the rich would know the taste of honey. But would it be a good thing for the country at large if no one should bother trying to produce honey who has not what Mr. Alexander calls a fairly good location?

A. I. Root, p. 1231, says the statement that only 7 of the 83 bee journals of the world are published in this country "gives us an idea of how little we are." Not an entirely correct idea, Bro. Root, for of the 75 published across the water the larger part contain scarcely any thing except matter copied from the smaller number of better ones; and even in the better class you will find page after page the same, from the fact that the same reports of conventions are contained in nearly all.

[The journals in this country, without a single exception, publish almost entirely original matter, and each has a field of its own. If the European readers would take only the best journals, the "copyists" would soon be ruled out of existence. This would enable the survivors to do better work because of a larger clientage and better profits. —Ed.]

Gleanings, if I understand correctly an item, p. 1123, wants bee-keepers to secure correction of comb-honey canards in cook-books, etc., saying, "It does not do much good for a manufacturer of bee-supplies to write to these people, because they conclude he has 'an ax to grind.'" But, dear Gleanings, hasn't the bee-keeper still more "an ax to grind"?

[Yes, in a way; but the concern that has several hundred thousand dollars invested in a certain line has a good deal bigger "ax to grind" than a lone farmer who may have only a hundred dollars so invested. Then, too, the protest from several hundred or a thousand small investors in the business would have a good deal more weight than the protest of one large one, but the point I had in mind was that the stationery of a large manufacturer of bee-supplies having the protest is apt to be suggestive of a "big greedy corporation" that is seeking to feather its own nest independently of the desires and rights of the small user of those supplies and hence the protest is ignored.—Ed.]

My good friend from across the water makes a good showing for an increased amount of honey collected on account of protection, p. 1238. Friend Simmins, I don't know but you are entirely right from your standpoint, "in regions that have cool nights." At any rate, I can easily believe that a temperature low enough would hinder the building of comb. Just how low it would have to be, and how much the hinderance, are things I should like to know. I have had comb built in a surrounding temperature of 45 degrees, but I don't believe that's the best temperature. But in this country we don't generally have nights cool enough to trouble much in the harvest season. It is probably a rare thing for my bees to have a night while gathering when protection would make any difference as to comb-building. The question is an important one, and our experiment stations ought to give us a definite answer. That would be better than discussion, although discussion may help.

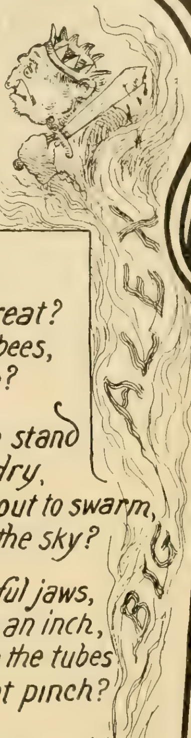
[If your climate is such that you have hot nights during the honey-flow, then you are a good deal better off than we are, where the general temperature through the winter is higher, for we are troubled much by cool nights. This question of outside protecting-cases for comb honey is one that will hinge on locality. I can readily see how such protection would mean an increase in the honey crop in a climate like that of England, while in your locality, for example, it might not make the difference of one ounce. But is it true, doctor, that you generally have hot nights during the honey-flow? —Ed.]

The reader will see by the last page of this issue, which numbers 1370, that during the year we made a big increase in the size of our volume all for the price, $1.00. A few years ago our issue was 32 pages and a cover, making in all 864 pages for the year. This gives us an increase of 506 pages. Next year will not run behind. But we do not wish to make any promises in advance as to how much better we can do.

Alexander the Great.

By

W. P. Root.



1

How big was Alexander, Ma,
That bee-men call him great?
What's all this rumpus with his bees,
Down in the Empire State?

2

Is he so big that he can stand
Within his bee-yard dry,
And when his bees start out to swarm,
Can snatch them from the sky?

3

And do his bees have awful jaws,
And tongues that reach an inch,
To draw the honey from the tubes
That common bees cant pinch?

4

Why can he do what others can't
(At least so folks believe),
Unless he's got some secret great
Tucked up within his sleeve?

5

No, no, my child! he's not so big,
Nor does he stand so high;
He's 'bout as big as Uncle James,
Or something like A. I.

6

His bees are good---Italians fine-
Just such as all may raise;
But in the way he handles them
Is where he earns his praise.

7

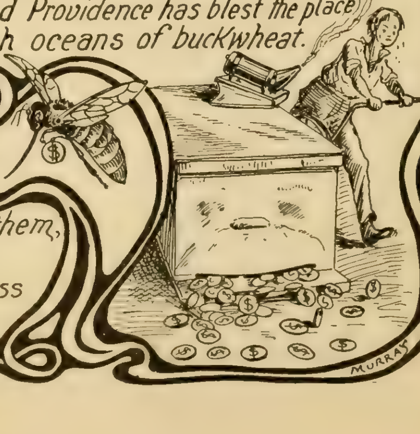
Of course the fields around are good,
And full of nectar sweet;
Kind Providence has blest the place
With oceans of buckwheat.

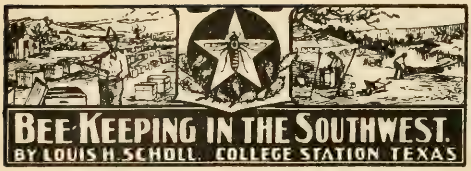
8

But constant work alone, my boy,
Bestowed on bees with skill,
Will put the honey in the hives,
And empty coffers fill.

9

Learn Nature's ways, then follow them,
For they are best, my son;
Then you may have as good success
As he of Delanson.





BEE-KEEPING IN THE SOUTHWEST.

BY LOUIS H. SCHOLL, COLLEGE STATION, TEXAS

What are the bees doing in the North at this time? They can't do what ours are doing here in Southwest Texas! Broomweed is in full bloom, covering the entire prairies, and the bees are storing honey for winter supplies. The summer has been a severe one on bees, and the colonies left are not very strong. Since the fall flow (a slow, steady one for over two months) brood-rearing has been kept up, and the colonies go into winter in the best possible condition—an ideal one—with a lot of young queens and an abundance of stores. What a harvest there will be next year if the season is favorable!

SOUTHWEST TEXAS.

Are you interested in *that* country of Southwest Texas? If you are you will want to get better acquainted with it—its location, rivers, railroads, counties, towns and information about each of these. You want something that will help to give an idea of just what the country is. Hundreds of letters that I have received the past few months are proof of this.

In answer to these a map was gotten up, and here it is. Keep it always ready, in a place where you can find it. Remember it was in the Christmas number of Gleanings. This will help you to find the map. Frequent reference will be made to this map in articles during the coming year. A trip of several weeks this fall has given me an opportunity to learn of some things that are done only in Southwest Texas. A thorough study of the map will enable you to understand subsequent articles much more fully.

LOCATION OF SOUTHWEST TEXAS.

This section, divided from the rest of the State, as given in the map, is my own, and is to be applied simply as a division according to apicultural resources that are very much alike in the whole section. North and east of the boundary lines the conditions are very much different for bee-keeping. A different flora also begins there. The division on the map, however, is by no means a distinct one, as the natural dividing line between the two divisions may extend both further east or north for some distance into adjoining counties at some places, while the same may not extend to the outer boundary-line of the counties included in the map. For convenience, the outside boundaries of the counties have been used as a dividing line, and, as well as I could ascertain, the division is close enough to suit our purpose.

Southwest Texas lies between the 97th and 101st meridian of longitude, extending slightly east of the 97th. North and south it extends from a little below the 26th to nearly the 30th parallel of latitude. The distance from the northernmost boundary of Bexar County (pronounced "Bair") to the extreme southern line at Brownsville is 290 miles. The width of this section of country is about the same distance from east to west. There are twenty-six counties—Bexar, Medina, Uvalde, Kinney, Maverick, Tavalla, Frio, Atascosa, Wilson, Karnes, Goliad, Bee, Live Oak, McMullen, La Salle, Dimmit, Webb, Encinal, Duval, Nueces, San Patricio, Refugio, Cameron, Hidalgy, Starr, and Zapata—and nearly every one of these is adapted more or less to bee-keeping, some of them containing many acres of fine bee-pasture without bees.

THE RIVERS AND RAILROADS.

The section is traversed by several large streams with their tributaries. The Rio Grande forms the western boundary. In the eastern portion the San Antonio and the Nueces in the central part, make their way through the entire length, and end in the Gulf of Mexico. It is along these rivers and along the railroads that most of the bee-keepers are located. Of the railroads there are three main trunk lines, spreading out from San Antonio as a center. The San Antonio and Aransas Pass runs south to the Gulf; the International and Great Northern to Laredo, and makes through connections to Mexico; the Southern Pacific, through the northern part, goes to El Paso, and is the main outlet to the Pacific-Coast country. All these extend east of San Antonio and make through connections at their terminals as well as at other connecting points to all parts north and east.

Besides the above, the Mexican National and the St. Louis and Mexico ply the southern parts and connect with the San Antonio and Aransas Pass. Other railroads will be built as soon as the country becomes settled more, thus opening up much new bee-keeping and other valuable territory, and providing a better outlet.

IN ANSWER TO NUMEROUS LETTERS.

Many of the inquiries sent to me ask for information about Southwest Texas. It is impossible for me to give them a personal reply, consequently this means is resorted to in answering all of them at one time. Other information will be given in Gleanings from time to time throughout the year, and to this I should like to call the attention of the interested bee-keepers.

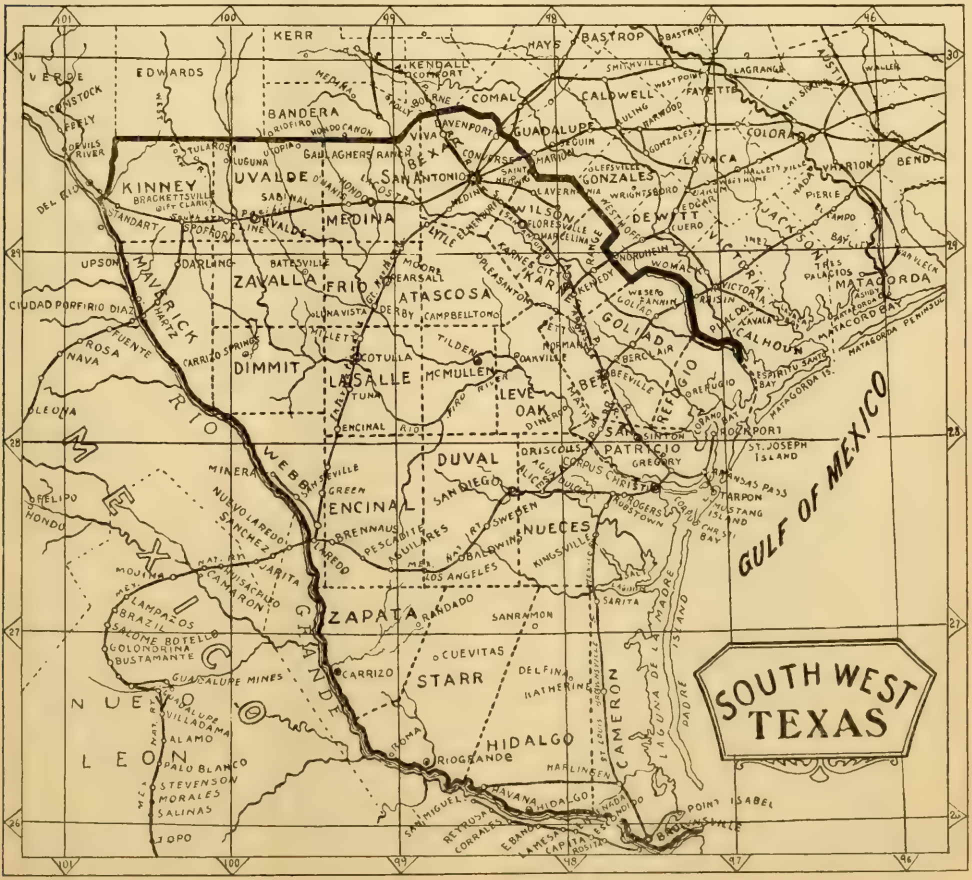
In reply to the letters in regard to Southwest Texas I believe I can do no better than to refer you to a copy of the "Texas Almanac," published by the Galveston and Dallas *News*, of our State. The almanac gives a description of each of the counties of Texas, their soils, water supply, climate, topography, resources, industries, and products; also information concerning population, schools, churches, transportation facilities, etc. These county descriptions constitute the leading features of the almanac; but there is much other valuable information concerning the crops, resources, and industries. It may be obtained directly from the publishers, A. H. Belo & Co., Dallas, Texas, for 31 cents, postpaid.

To those who are seeking to locate in Texas it would be best to write to the Land Commissioner for a list of school lands now being sold by the State. Six million acres of public school lands were placed on the market by the State of Texas, Sept. 1, 1905. Other lands will come on to the market from time to time as the leases under which they are held expire. Prices generally range from $1 to $3 per acre, and in some cases more. The terms are one-fortieth cash, the remainder in forty years with interest at 3 per cent. The lands may be held forty years by making the original payment of one-fortieth down and paying the interest annually.

Lists of the tracts of land going on the market, and directions for applying for the same, may be obtained by writing to Hon. J. J. Jewell, Commissioner of the General Land Office, Austin, Texas. He will, from time to time, publish additional lists of lands to come on to the market, and will supply these free of cost to the applicants. Persons who are desirous of securing information concerning the counties in which the said lands are located can get this by referring to the Texas Almanac above referred to.

To all who are thinking of making a change I should like to give a word of caution. It is not every man who should come to Texas. If any man has a good home, and is making a comfortable living, and has reasonable hopes of a prosperous future for his children, he ought not to pull up stakes there and go to unknown lands. If land at reasonable prices can not be bought around him to provide homes for his children in the future, as they grow up, or if climatic or agricultural conditions are unfavorable, and a change will be to his advantage, then go to the new country. Before doing this, look the ground over carefully.

Texas wants progressive people. She needs them to develop her industries, bee-keepers not excepted. In my travels I have seen many localities that afford abundant room


SOUTH WEST TEXAS
GULF OF MEXICO
KERR
EDWARDS
BANDERA
KENDALL
COMAL
HAYS
BASTROP
CALDWELL
FAYETTE
GUADALUPE
BEXAR
SAN ANTONIO
GONZALES
LAVACA
COLORADO
WHARTON
JACKSON
VICTORIA
DE WITT
KINNEY
UVALDE
MEDINA
WILSON
KARNES
GOLIAD
REFUGIO
CALHOUN
MATAGORDA
ZAVALLA
FRIO
ATASCOSA
MAVERICK
DIMMIT
LA SALLE
McMULLEN
LIVE OAK
BEE
SAN PATRICIO
DUVAL
NUECES
WEBB
ENCINAL
ZAPATA
STARR
HIDALGO
CAMERON
LAREDO
CORPUS CHRISTI
BROWNSVILLE
RIO GRANDE
NUEVO LEON
PADRE ISLAND
LAGUNA DE LA MADRE
ST. JOSEPH ISLAND
MATAGORDA BAY
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DEL RIO
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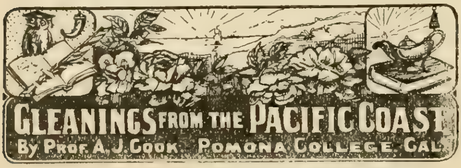
for many bee-keepers. Of these more will be said later, always trying to give the bad side as well as the good.



GLEANINGS FROM THE PACIFIC COAST

By Prof. A. J. Cook, Pomona College, Cal.

While on the ocean, *en route* for Europe, I had the pleasure to read a book that I wish to recommend to the readers of Gleanings. It is called

THE FAT OF THE LAND.

The author is John Williams Streeter, and the style of the book is the same as "Blessed Bees," which, it will be remembered, was a fascinating recital of the experience of one John Allen, which was so realistic that many supposed it was actual fact, though it was a too roseate picture of what might possibly occur, but what would be exceedingly improbable. In this later book John Williams is the chief character and he, because of over work as a successful physician, breaks in health, and so, with abundant means, he purchases a farm, makes a thorough study of the principles of agriculture, and achieves a brilliant financial success. He also regains fully his lost health. I do not know whether or not this is the recital of actual experience; but I am sure that the methods described will bring success. I see no reason why the financial success as pictured in the book might not be realized to the full. Mr. Williams kept strictly in line with the principles of land culture that have been determined by our Department of Agriculture at Washington and the several Experiment Stations. He worked to improve steadily the fertility of his soil, and aimed to sell only such products as would not impair such fertility.

I am the more ready to call attention to this volume, as it is not only full of valuable suggestions that will help to bring success in any line, but I have known several cases in Southern California that have been as striking in the way of phenomenal success as the experience of John Williams. I believe the success of Mr. C. C. Chapman in orange culture would even distance the figures given in "The Fat of the Land." Mr. Chapman, to my certain knowledge, has won his proud success by keeping in touch with just such principles and methods as those which pushed Mr. Williams to the very front. All this is most pleasurable to think upon, for, as we know, agriculture is the very basis of all national prosperity, and that, with its advance, progress will be pushed in all lines. When farmers are thoroughly taught as to principles and methods, and will practice as best they know, then they will leap forward with prodigious bounds, and all other activities will feel the impetus from this progress. American agriculture to-day leads the world because it uses brains more than elsewhere. We shall go on to better performance with such narration of success as is given in this interesting book. More than this, the pulse-beat of this higher, better life will reach to other lands, and so the world will be blessed.

THE HIRED MAN.

One reason why Mr. Williams reached such eminence was the fact that he had reliable, competent help from his men. They made his interest their interest. The farmer who is thus fortunate in his hired help has a most potent factor toward exceptional success. Mr. Williams, instead of acting on the principles of "Charge all the traffic will bear," used the golden rule in all his relations with his men. Of course, his employees responded to such treatment, and probably no money expended on the farm brought such large returns as that which gave to the help good—the best—food, pleasant rooms, books and papers, and made their lives on the farm pleasurable. Mr. James Mills, of Riverside, California, and Mrs. Minnie E. Sherman, of Fresno, in the same State, have both carried out the same plan on the large farms which they control, and the tremendous success which they have both achieved owes not a little to their wise and generous treatment of the hired help. I believe that the heaviest tax our farmers pay is that which comes from poor, uninterested, inefficient help. The one thing that will tend most powerfully to remove this ungracious handicap is to bring more of the golden rule into play in all the relations with our employees.

ORDERS OF INSECTS.

A subscriber asks if I will not describe the several orders of insects so that one who has not studied entomology may place them. I am glad to do this, as it is quite easy. The names of the orders come from the wing-characters, and it is the wings that are of chief use in placing the insects in the ordinal groups. But many insects in all orders are "apterous," that is they have no wings, therefore we must look further than wings to find characters that will make us able to classify correctly all insects into orders.

The kind of mouth organs is the second guide, and is easily used by the neophyte. As there are but two kinds of mouth-structure in general structure, though the details are most varied, and as there are several orders, we have to use still a third set of characters in this classificatory work. These have to do with the transformations of the insects, whether they are very pronounced, or complete, as we call them, or not so marked, when we style the transformations incomplete. The locusts and lice are always much alike, though here we find four stages in development as elsewhere. The egg is much the same in all insects. The larval locust, or grasshopper, is small and wingless, but looks so much like the mature insect that the novice would recognize that they were the same. The next stage—the pupa—is also active, and resembles both larva and adult, though it has only rudimentary wings, and, though larger than the larva, is smaller than the adult or imago. Like the larva and imago it feeds, and so in habits the insect is much the same in all three stages. The imago is chiefly peculiar in its larger size, fully developed wings, and in being now sexually perfect. This mating of the sexes and egg-laying are usually peculiar to the adult or imago insect.

In complete transformations it is quite otherwise. The larval grub, or caterpillar, is worm-like in form, and may or may not have legs. The growth and usually the feeding occur exclusively at this period. The pupa is inactive, and resembles the imago in a general way. Of course, one not informed would not recognize these different stages as belonging to the same insect.

A word more about mouth organs before I commence the description of the orders. Most insects like bees and beetles have sharp, strong jaws or mandibles which they use for biting. These move sidewise, and are often strong and quite formidable. They have other quite complex organs, which, as in case of bees, may be transformed into a sucking organ. Yet all these mandibulate insects, as they are called, can bite and devour their food. The other insects have the mouth organs modified into a beak, or sucking-tube, with which they can suck the juice of plants or the blood of other animals. Some insects, like butterflies and moths, bite as larvæ, or caterpillars, and suck when mature. Thus the caterpillar eats the leaf while the parent moth can only sip the nectar or dew drop. Sucking insects are called suctatorial or houstillate. It would seem that it would be more serious to devour than to bleed or suck the sap; yet for a fact these sucking insects are no small enemies, and are really not second as pests.

NEUROPTERA.

The neuroptera, or lace-wings, are easily told, as the wings are thickly covered with veins. There are several main nerves or veins, and very numerous cross-veins. They always have biting mouth parts, and may or may not have complete transformations. This order is so diverse that most authorities would divide it into several orders. Here we find the darning-needles, the only one that is of practical importance to bee-keepers; the white ants, which are interesting as they remind us strikingly of bees in their life history. Here we have queen, workers, and, in addition, soldiers. The queen is even more prolific than is the queen-bee. Indeed, it is said that the queen white ant lays over 100,000 eggs a day. She is hardly more than a vitalized egg-sack, and does nothing but lay eggs. She is fed, groomed, and cared for absolutely by the other members of this curious family. The aphis and ant lions also belong here. These latter pass through completed transformations, while the others mentioned above illustrate incomplete metamorphoses.

To be Continued.

BEE KEEPING AMONG THE ROCKIES

BY J. A. GREEN

SWEET CLOVER.

Prof. Cook's remarks on sweet clover, page 1121, should perhaps teach me to have a little more charity. In my own experience, those who have talked that way have generally been lacking in the faculty of observation, and I have usually been able to show them that they were mistaken. For instance, a cousin once came to visit us. The talk turned upon sweet clover, and she said, "But it is such a perfectly worthless thing. Nothing will eat it." I at once invited her out to the barn, where her horse was eating sweet-clover hay with a very evident relish. He had never had any before, but he ate it greedily; and after he was hitched up to go away he paid his respects to a tempting wisp of sweet-clover hay in a way that showed plainly what *his* sentiments were. I have never had a horse or cow that would not eat it readily without any teaching, especially when made into hay; but I know that some stock do not take to it readily at first. This does not prove that it is not good forage. Cattle-feeders tell us that stock just brought in from the range will often refuse to eat corn, and they sometimes have considerable trouble to get them to make a start on it; yet I never heard any one argue from this that corn is distasteful to cattle, or that it is not good feed for them.

COMB HONEY ATTACHED TO FENCES IN SUPER.

It has been my experience that bees are much more likely to attach the combs to fence separators than to plain wood separators, and that both of these are more likely to have such attachments built on them than the tin separators. I confess to a strong leaning in favor of the old-style tin separator, which is what I use almost altogether. Some bees are much more likely to build these attachments than others. When you discover this, of course the proper thing to do is to requeen with better stock.

WHY DOES COMB HONEY SOUR?

A perplexed subscriber asks on page 1142 why his comb honey sours. While it is quite possible, as the editor has suggested, that the honey came from some source with a special tendency to sour, it may be that a part, at least, of the trouble is due to his method of handling it. He says that he wraps each section separately in paper, and that the frames are covered thoroughly, top and bottom, in the supers, with paper. That is to say, he has shut them up as nearly air-tight as possible, while still in a comparatively thin and unripened condition, and then wonders why they should sour. Why is it that so many people, bee-keepers included, think that honey must be kept cool and away from the air? I received a letter some months ago from a bee-keeper, asking how he could ripen his extracted honey into a more satisfactory condition. He had extracted it rather thin, and stored it in a large tank where it had deteriorated rather than improved, as he had been told it would. He said he was sure it had not been injured by the heat of summer, as his honey house was built with double walls and roof, with packing between the walls, while the doors and windows were as tight as a carpenter could make them. In other words, he had made a building after the fashion of an ice-house or refrigerator, when what he really needed was an evaporator. The place where honey keeps best is in the hive, where the bees can keep it always warm, where the door is open at all times, and where a number of ventilators are ready to set to work to increase the circulation of air at any time it may be needed.

The ripening process of honey is not ordinarily complete when the comb is sealed, and both comb and extracted honey are improved by further ripening. This may be accomplished by leaving it a long time on the hive; but in the case of comb honey this results in a deterioration of its appearance, and, consequently, its market value. The same result may be accomplished without this deterioration in appearance by storing the honey in a dry, hot, well-ventilated room, the honey being so arranged that the air will have free access to it.

FOUL BROOD IN APIARIES RUN FOR EXTRACTED HONEY.

Elmer Todd, in his article on page 1073, appears to think that I have conveyed a wrong impression of what he wrote for the ***Bee-keepers' Review*** on the above subject, and that I have not understood some of the points of the article. He also appears to think that my objections to the plan he proposes are based on theory rather than on actual practice.

I have carefully re-read his article and I fail to see that I have misrepresented it in any way or that there is any part of it that I do not understand. As to theory *vs.* practice, I will say that I have had full experience with foul brood in an extracting apiary, having been through that mill thoroughly some fifteen years or so ago. In my experience as Bee Inspector here during the past three years, I have handled and observed a very large number of cases of foul brood in hundreds of apiaries and have had abundant opportunity to note the ways in which it is propagated and spread. I have also made some experiments in feeding healthy colonies with honey from various parts of a diseased hive. It is not from fine-spun theories, as he intimates, but from the knowledge gained by experience and particularly from that gained by observing the disease in the hands of a great many different men, that I have objected to his conclusions and especially to their publication.

I do not doubt at all that one might in most cases safely extract the honey from a super separated by queen-excluding zinc from a brood-chamber containing only a few cells of foul brood. I feel sure, though, that such a practice would, with most men, result in disaster sooner or later out of all proportion to the possible gain.

It is doubtless true that the use of excluding zinc very greatly lessens the danger of spreading the disease through the medium of the extractor and this is another very good reason, added to several others, why it should always be used. Mr. Todd deserves credit for calling attention to this, though in my opinion he goes entirely too far in claiming that foul brood can be controlled as easily in an extracting apiary as in one run for comb honey. For in most cases there is never any exchange of honey in sections from one hive to another, and when there is any such exchange, it is only of unfinished sections to which the bees simply add honey and from which they very rarely use any honey to feed brood. With extracted honey it is very different. All combs go into the comb-basket of the extractor; and even if all combs are returned to the hive from which they came (which is inconvenient and very rarely practiced), they are brought into contact with the honey from the combs that preceded them, which may contain the germs of the disease.

It is unquestionable that diseased honey is frequently stored in the supers. For instance, when a colony has swarmed the bees usually fill the brood combs more or less completely with honey. Though bees dislike to do anything with cells that have contained foul brood, under the pressure of a good honey flow they will fill them with honey. This honey is certainly infected. When the young queen begins to lay, this honey is moved up into the super. When the combs containing this are extracted, they are liable to infect others, even if they are not themselves transferred to other hives. When the bees receive a set of freshly extracted combs, they proceed at once to clean them up and the honey taken from them is used the same as any other honey that comes into the hive. If it is infected and is used then to feed brood, or is stored away where it will be used to feed brood, it will start the disease. This will happen sooner or later. I have known cases where bees that obtained infected honey showed no trace of the disease for nearly a year, the honey evidently having been stored away so that it was not used for brood rearing sooner. At other times I have known a bad case to develop within a month after the infected honey was taken into the hive.

The greatest trouble with the plan advocated by Mr. Todd is that many, instead of extracting from hives that contain but a few cells, and with therefore but a slight probability of conveying the disease, will, either from carelessness or the willingness to take chances, extract and interchange combs from those in which the disease has progressed so far that infection is extremely probable.

The safest way to handle an extracting apiary where foul brood exists is to use queen excluders on all hives and to tier up as much as possible, so that there will be as few extractings as possible from each hive. Then inspect the brood combs before extracting, and if any disease is found, no matter how little, extract the honey from that hive first, with proper precautions to prevent the spread of the disease. Do not under any circumstances extract any honey from the brood combs unless you expect to do a very thorough job of disinfecting afterward.

A STEP BACKWARD.

At a series of farmers' institutes recently held in this part of the state, the speakers being paid by a state appropriation, the man who handled the bee-keeping part of the program advocated that farmers and others who intended to keep only a few colonies of bees should not go to the expense of movable frame hives, but should put their swarms into plain boxes. His argument in defense of such amazing advice was that even when they used modern hives, they almost always had the combs built crooked so that the frames could not be handled, and that even when they were straight they never handled them. He thought, too, that it was easier for the inspector to examine box hives than frame hives in which the combs were crooked, and finally, while if any hives had to be destroyed on account of foul brood, the loss would not be as great as if the hives had cost more.

While there is some truth in these arguments, it is an insult to the intelligence of the Colorado ranchman to say that he cannot get his bees to build combs straight or use them when he has them. There are some, it is true, to whom this applies, but the majority of them handle their bees intelligently and in fact many of them are ahead of some of the larger producers in this respect. Bees cannot be as profitably kept in box hives, nor can they be satisfactorily inspected and kept free from disease.

It is costing the taxpayers of the state a great deal of money to keep foul brood in check and that without very satisfactory results. Yet this man, paid by the state and supposed to be working in the interests of the people, is advocating a plan which will make inspection more difficult and expensive and less effective and that will certainly tend to the increase and spread of foul brood. Then our foul-brood law, though not as stringent as it should be in some respects, provides that bees in box hives may be destroyed if the owner neglects to transfer them to frame hives.

The man who starts with only a few colonies may before long have a large apiary. If he has started right, there will be no loss and nothing to regret. He will learn of bees and their ways as he progresses and become an intelligent and successful bee-keeper. The man who starts wrong has a costly mistake to undo, or he will always remain unprogressive, a stumbling block and a menace to his neighbor.

The argument on the cost of hives it seems too is a pitiful one. A frame hive can be made at only a few cents more than the cost of a box hive; and a hive properly cared for will last fifteen or twenty years.

COLORADO AS A FRUIT COUNTRY.

While the bee-keepers of Colorado have not much to boast over this season, the fruit men in this locality are jubilant over the crops of apples they have secured and the prices they have received for them.

A neighbor claims to have sold $64.65 worth of apples from one tree. I have picked over $25.00 worth of apples from a ten-year-old tree. Other reports range all the way between. This was not a good peach season, as in most places the buds were killed last winter. In favored localities though, some of the peach men claim a profit of close to a thousand dollars per acre. This beats bee-keeping, in a season like the past. I wish A. I. Root could leave his cabin in the woods long enough to make a visit to the Grand Valley during the fruit season.

NEW BLOOD NEEDED.

In inspecting bees this fall, I came across a number of colonies with a hive full of honey and a queen apparently all right, but with only a mere handful of bees. These, if they did not desert their hive, would have died the first real cold snap and then the owner would have puzzled over the mystery why a colony with plenty of honey and combs in good condition should have perished, leaving few or no bees in the hive.

In such cases I have advised the introduction of new blood into the apiary by getting a few queens that would not stop breeding so early in the fall.

"TANGING" TO MAKE SWARMS SETTLE.

Professor Bigelow appears to think that it is the "city chaps" and funny papers that are responsible for the idea that it is foolishness to pound tin pans, etc., when bees swarm. I think that the ridicule of this old custom originated with and is most common among practical bee-keepers.

I pounded pans in my boyhood, but I have never seen a particle of evidence that it did any good. At least 999 out of 1000 swarms will settle anyway. We will admit that mechanical disturbances, such as throwing water or other substances among the bees of a swarm, or perhaps the flashing of light among them, may have some effect in inducing runaway bees to settle, but did anyone ever know any amount of noise, and *noise alone,* to have any effect in stopping bees after they had once settled and then really started to run away?

Conversations
With
Doolittle

ABOUT SEPARATORS.

"Good morning, Mr. Doolittle. Cold this Thanksgiving day."

"Yes, Mr. Smith, and a great change in temperature since yesterday noon. The mercury stood at 54 above zero at that time, and now it is only 14 degrees above. Got your bees in the cellar yet?’

"Yes, I put them in one day last week. I was hoping that they might fly once more; but I am glad now they are all housed. It was warm enough for bees to fly yesterday, had it not been for the high south wind."

"I put mine in two weeks ago. Of course, I am always glad to have them fly a few days before they go into the cellar; but I do not wait long after the middle of November, for I think it is better for them to have the hives all dry and nice when they go in rather than have the hives all wet or covered with snow and ice, as is often the case if we wait till nearly or quite December before putting them in; at least, I can see very little difference in the way they come out in the spring, between those set in before or after a day in which those left out have a late flight. Therefore I put them in along from the 10th to the 20th of November, regardless of whether they have had a flight or not, on the first day when the hives are dry and nice, and when they are not frozen down to the stands. A temperature of from 35 to 40 degrees above zero is one in which they go in with the least disturbance."

"I am glad to know of these things; but I came over to have a little talk with you about separators. I was reading in an old bee paper which I found in the paper-rags at the tinshop last night that more honey could be secured in sections where no separators were used than could be with them, as they tended to hinder the work of the bees. I am about to make a lot of new supers this winter; and if it is best not to use separators I should like to know it before I commence work. What do you think?"

"There is no question but that bees will store honey in sections without the use of separators; but the great question is regarding its *marketable* shape where stored without them."

"But what do you think about the matter of their storing more honey where they are not used?"

"When I commenced to use separators I was fearful they would be a hindrance to the bees in their work, and so I used them on half the colonies that were run for comb honey, and worked the other half without them, with the result that, at the end of the season, I could see no difference as to the amount stored by either half, on an average; but I could see a great difference in favor of that honey built where separators were used when I came to prepare the same for market."

"But one season would hardly be a fair trial, would it?"

"That was the way I then felt, and so I kept on trying, using more and more colonies with separators, till, after three years' experimenting, I became satisfied that the separators were no hindrance to the yield of honey.''

"Well, I am glad to know this; but I hardly feel satisfied in my own mind yet."

"Well, that being the case, you can, if you desire, go over the ground for yourself; but as nearly if not quite every comb-honey raiser of today uses separators you will probably conclude to use separators at the end of your experiments; and, if so, to accept the experience of others, without going over the ground they have traveled, will save you much time and expense."

"Yes, I know you are right there; and I should decide now, before I build the new lot I am anticipating doing; but how would it do to bore a lot of holes through the separators, thus making the super more nearly as it would be where no separators were used?"

"That would only be going over old ground, as the thought is not new."

"Did you ever use any in that way?"

"Yes. I procured a boring-machine for this special purpose, and, with the power of a six-horse engine, I could bore the holes through a four-inch plank very rapidly; and after the holes were bored the plank was sawed up into separators, so that the work would not have been very great. I was so enthusiastic in the matter that I got out very many more than I needed for a careful experiment; and such, the next season, showed nothing in their favor, much to my surprise."

"Can that be possible? I had thought such would be preferable to what are termed 'fences.' Have you ever used the fence separators?"

"Yes, both of wood and of tin; and if I were to adopt fences I think I should prefer the tin, as it takes less room in the super and is not liable to be gnawed and worked at by the bees."

"But can you not get more handsome-looking and more completely filled sections by the use of fences?"

"My experience says there is no perceivable difference, taking an average of colonies and an average of seasons, and with the same use of foundation in all the sections."

"That seems strange, for I had certainly thought that these perforations would help matters much."

"I know it would seem so, but facts are stubborn things, which will often stand secure after theory fails. But if there was any thing in these fences and perforated separators above the old-time solid separators, the Betsinger invention of using wire cloth of a quarter-inch size would be far better than any of the others; for with this the bees can go and come, as well as the heat, in any and all directions, nearly, if not quite, as well as it would where no separators are used. Still, with a careful test of the whole, with supers of each, and the different separators of the different inventions mixed in the same supers, together with the old solid plain tin separators which first came into being, I have failed to find any thing in favor of either, after years of experimenting; therefore I conclude that it makes no difference which are used."

"Then you would advise me to use the old plain tin separators, would you?"

"No, not necessarily that. If the most of my supers were fitted with these, and they were as cheap as any to me, I should prefer them, so as to have all my supers as nearly alike as might be. If I had the fences, or wire-cloth separators in general use, and they were as cheap for me to make more from, or fit new hives with, then I would use them, as there is an advantage in having all the fixtures in the apiary as nearly alike as possible."

"But are you sure that the bees will make as nice-looking sections of honey with the plain tin separators as they will with the fences or wire-cloth separators?"

"My experience tells me that the season and the different strains of bees have all to do with this, if I may except the way and amount of foundation used. Fill the section full of foundation; and with a good season and a strain of bees that way inclined there will be no holes left next to the wood of the sections —no, not even in the corners. But with only starters in the sections, a poor season, or a strain of bees that are not given to close filling, and you will get sections with more or less holes along the wood, and especially in the corners, no matter what kind of separators are used. In fact, I find that, all other things being equal, the matter of separators plays no part in this matter; and I have had thousands and thousands of as perfect sections filled and finished when using the old plain tin separators as have been any of those pictured in the bee papers to show that perfect sections could be gotten with a different separator."

"Well, I must be going now, as I am invited out to Thanksgiving dinner."

Editorial
By E.R. Root.

How do you like our Christmas cover, showing red clover in natural colors?

"IF I COULD START ANEW IN BEE-KEEPING, WHAT APPLIANCES WOULD I ADOPT?"

DURING the coming year there will be a series of answers from prominent bee-keepers in various parts of the United States in reply to the question, "If I were to start anew, what style of hive, frames, supers, and appliances would I adopt?" These men who, by the way, have made a success of bees will represent every section of the country and every style of hive and frame. They are built on the broad-gauge order, and are not afraid to express their convictions. This will be one of the most valuable series of articles we have ever published. The list of writers will be announced later. In addition to this series there will be some special articles discussing various vital questions connected with our industry.

A HARD FALL ON WINTER STORES.

REPORTS from over the country indicate that this has been a rather severe fall on the winter's stores. Bees that were fed up and well supplied three months ago are short just at the time of going into winter quarters. The warm weather of the early fall induced brood-rearing, and this was followed by cold weather. Both conditions caused an extra consumption of stores. Colonies that are short may be fed in the cellar with a pepper-box feeder. Outdoor bees should be given big chunks of queen-cage candy. For winter feeding this is prepared by mixing a good grade of extracted honey and the best pulverized (not confectioners') sugar into a good stiff dough. Lay this on top of the frames right over the cluster; tuck it in warm with carpeting or some other equally good packing material. Most hives would require the putting-on of an extra super in order to accommodate this lump of candy. In this case put the quilt over the cluster and the candy, then fill the super level full of packing material.

THE RESULT OF THE LAST NATIONAL ELECTION OF OFFICERS.

THE result of the last National election was as follows: President, C. P. Dadant; vice-president, George E. Hilton; secretary, W. Z. Hutchinson; general manager, N. E. France; directors, Mr. F. Wilcox, C. A. Hatch and E. R. Root.

I declined to accept the office of director some two years ago, not because I was dissatisfied with the management nor with any of the officers, but because my time was taken up so much with my general work that I did not feel that I could do justice to the Association. While I still feel the same way, I do not wish to be unreasonable to the extent of declining the election the second time. I certainly appreciate the compliment of the second election in the face of declining the first; and as to whether I can accept the office will be determined later, after I consult some of my friends.

IS THERE A FUTURE FOR STINGLESS BEES?

APPARENTLY there will be a strong demand for the Caucasian bees because they are generally spoken of as being very gentle. While individual specimens may be cross, their general reputation is good on the one point, at least, of being docile and easily handled, whether they have any other desirable qualities or not. Now, it is possible that there is a class of people in this country who would like to go one step further, and secure bees that *could* not sting, even if they would. There is no doubt that Uncle Sam will help us to investigate the qualities of the melipona so we shall know more about them in the future than we do now. But from what we know of stingless bees in general we should hardly be warranted in concluding that they will ever be commercially important; and it is even doubtful whether they could adapt themselves to our particular climate. Perhaps they could be kept in our extreme southern States. As a matter of fact, there is one small species, I believe, of the stingless bees in Texas.

THE FOLLY OF KEEPING THE BEES OUT TOO LATE.

IN our last issue, page 1234, I took the position that it was better to leave the bees out as long as possible in order to give them one more winter's flight. The editor of the *Review* took the ground that it was preferable to put the bees in early, saving them the severe chills pending a warm flying day that might not come. I differed then with my brother-editor on this point, as will be remembered. Some experiments we have been making since, the result of which is just made apparent, goes to show that Bro. Hutchinson was nearer right than I—at least for this fall.

We put in the shop cellar about half of our colonies some three weeks ago, selecting the weaker ones, leaving the stronger ones outdoors. Today, as we put in the last lot, it was plainly evident that during the three weeks they had consumed largely of their stores, and were weaker in actual force of bees. Our Mr. Pritchard reports that the colonies that were put in three weeks ago, and were not as strong at the time as the others left out, are *now* ahead in point of numbers and weight of stores. It is true the second lot had the benefit of a nice flight; but three weeks of cold weather cost them in stores and bees a good deal more than we gained. Whether this will prove true *every* fall, I cannot say; but I am frank to acknowledge that Mr. Hutchinson hit the nail squarer on the head than I did.

THE SCIENTIFIC CLASSIFICATION OF THE HONEY-BEE.

LEST the reader may become a little confused in regard to the classifications as mentioned elsewhere in the article on stingless bees, it may be well to explain.

In the first place, the honey-bee belongs to the general order of *Hymenoptera*, meaning membraneous-winged insects. In this we find the family *Apidæ*. This is further subdivided by genera, comprising the following: *Apis*, the hive bee; *Bombus*, the bumble bee; *Xylocopa*, the carpenter bee; *Megachila*, the leaf-cutter; and the *Melipona*, the stingless bee of the American tropics. The first genus, *Apis*, includes such species as *Apis mellifera, Apis dorsata, Apis Indica*, etc. Each one of these species comprises varieties or races. Under *Apis mellifera* we have Italians, Cyprians, German, Caucasians, Carniolans, and the like. Under *Melipona* we have also a large number of species, some of which have been named, and some, probably, have never received the careful attention of a scientist. In the article elsewhere, Mr. Green is describing one species of the genus *Melipona*. Not knowing the name of this particular species, he designates it by the general generic name, comparing it with species of *Mellifera* of the genus *Apis*.

Possibly this may seem "all Greek" (or Latin) to some; but in scientific articles of this kind it is very necessary that we do not get misled or mixed when we come to talk about races, species, and genera.

Referring to the particular *Melipona* described in this issue, the illustrations will doubtless enable some scientific men to give the species. If this is the largest and most important of the *Melipona*, then we ought to know its name just as we know the name of *Apis dorsata*, the giant bee of India. If they are the giant bees of the *Melipona*, then we ought, of course, to know the name.

THE FIRST-PRIZE SWARM OF BEES.

THE first-prize photo of a swarm of bees, by A. L. Errett, on page 1319, shows up as fine a cluster of bees as was ever taken by a camera. Even the white fuzz bands and the yellow ones, as well as the gauzy wings of the bees, stand out clear and distinct. To photograph successfully a swarm of bees is one of the most difficult things in all beedom, as I know by experience. In the first place, yellow takes black. The other portions of the bees, except the fuzz bands, are black. Then as a general thing a swarm will hang in some shady spot out of the direct rays of the sun. All these conspire against taking a good instantaneous photo, for a time exposure is out of the question, as the bees are constantly moving. Nothing short of a snap shot will catch them at all. That Mr. Errett was able to overcome all these difficulties is evident by the half-tone shown elsewhere.

Incidentally it may be noted, as in the case of nearly all swarms, the bees have their heads pointing upward. If you were to ask the average bee-keeper what is the relative position of the bees in a swarm he might be unable to tell you. As a matter of fact, a bee can hang on to its neighbor better with its head facing toward the point of attachment. When the cluster is suspended from a bare limb, without any supporting branches running throught it, the strain on the bees hanging to the point of support must be enormous; but in the case shown on page 1319 the bees are probably held by several branches. In this case we should naturally expect that more of the bees would be having their heads in different directions. Except toward the very bottom, nearly all the bees would seem to be looking skyward.

It has been said that a queen will generally be found on the outside of the cluster, where she can be easily picked up and caged. I think this is generally true, for the bees seem disinclined to put any strain on the queen or to cover her up in a great mass of bees. She is, therefore, allowed peculiar privileges—privileges which she seemingly accepts as her queenly right. I have scanned this cluster very carefully, but do not see any thing that looks like her majesty on the front exposed to view. We may, therefore, conclude that she is "on the other side."

It will be noted further that the bees, true to their general instincts, sought the end of a bough with small limbs. It is very seldom that a swarm will be found in the crotch of a tree or a limb as large as one's arm. The fact that they cater to the ends of small leafy branches makes it much more handy in hiving. From such a point they can be easily jarred off, or the branch may be cut with a pair of pruning-shears or a good sharp knife. Except in the case of ornamental foliage it is cheaper, at least, to cut the limb. If the bees be shaken off, there will be hordes of them that will be going back to the old point, having a strong scent of the swarm. It takes a good bit of jarring and smoking to get them to cluster elsewhere or with the rest of the bunch of bees in a hiving-box; so in the generality of cases it is better to cut the limb entirely, and do it in such a way as not to jar it, in order that there be no more than half a dozen flying bees. If the branch with its precious burden be now carefully conveyed to the hive, and laid in front of the entrance, there will be no commotion, and every bee will be secured.

GENERAL
CORRESPONDENCE.

THE AMERICAN BREEDERS' ASSOCIATION.

How Bee-keepers by Joining may Become Benefited.

BY E. F. PHILLIPS, PH. D.

About two years ago there was formed an organization known as The American Breeders' Association; and, since but few bee-keepers are interested in this movement at the present time, it may not be amiss to tell something about the object and work which has been done and is being done by the men interested.

On December 29, 1903, about fifty persons met in St. Louis for the purpose of forming an organization composed of the leading men in plant and animal breeding work. Those most prominent in all lines of breeding took an interest in this from the start, and to-day there are over seven hundred members in the association, including almost all who rank high in their respective lines.

By growers of all forms of plants and animals it is now recognized that there can be much accomplished by proper selection in the various forms of life in the way of improvements for the uses of man, and it is also generally known that the general principles which must be considered in this breeding work are very similar, no difference on what species work is being done. The two great factors which enter into all such work are heredity and variation; and countless times it has been found that these two principles hold good for all types, although, of course, they differ in details of practice in the different species which are studied. It is highly fitting, therefore, that breeders should unite themselves in a study of these great principles; for by comparisons of the results which they have severally obtained a clearer insight may be gained and much more accomplished.

Heredity can be chained down, as it were, so that man may, by skillful selection, attain almost any result desired. In the same way variation, which normally works in all directions, may be diverted into any channel which best suits the purpose of the breeder. However, before such things may be accomplished there must be at least an elementary knowledge of the underlying principles, and these can be ganied much more rapidly by comparisons of the results obtained in experiments on many forms of life.

Two classes of persons are interested in the problems of heredity and variation—

the scientists and the practical breeders. In the American Breeders' Association both groups of men are represented, and the result of such co-operation can not but result in the scientists becoming more practical in their work and the breeders becoming more scientific—results which will work untold benefit to both classes. Both have done excellent work in the past, and are now independently working on exactly the same problems but with different ends in view. That each class will be able to attack the problems with a wider point of view must result from this co-operation.

That the principles underlying the breeding and improvement of the races of bees are primarily the same as those found in other similar lines, and that there is room for improvement in every race of bees now being raised, are facts almost too evident to need mention. Does it not seem, then, that bee-keepers would do a wise thing in becoming interested in this movement, and then applying the results of other lines of work to their work on bees?

Something has already been done of this kind on bees. We now have five-banded Italians which, by selection, have been bred from the natural three-banded type originally imported, so that in only a few years this strain has been produced and breeds quite true. Others have bred with the idea of producing bees which do not swarm; but, while something may have been done, the result is not so easily measured, and we are not able to say just how far this has been successful. Still others have selected for gentleness, and have been successful to some extent.

The search for bees with long tongues is, it seems to me, slightly different in nature. Sports have arisen of queens whose bees had tongues longer than the average, and a feeble effort has been made to perpetuate this trait, but without any great success. This character is more difficult to select, since the tests of advancement are harder to make.

After all, though, what bee-keepers want is honey, and it may not be out of the way for the breeders of queens to attempt to figure out how much advancement has been made in the past forty-five years with the Italian race. Compare the records of the early importations of Italians with records of colonies bred from American-reared queens and there will be seen comparatively little advancement. Certainly the average per colony for the entire country is not more than the amounts produced by the earliest-imported queens, and there is good reason for thinking that many of our colonies are very inferior to the imported stock. Here is room for scientific selection by the use of the scales.

It is safe to assume that, if any queen-breeder had figures to prove that, by wise selection, he had produced bees which are superior as honey-producers we should see those figures in the advertising columns of the bee-keeping journals; but until we see actual comparative weights we must not be expected to believe any generalized statements. When Jersey cows of high grade are for sale, the yearly amount of butter fat produced is given; but for bees it is not so easy to give figures; but that is just what must be done before we obtain more perfect honey-producing bees by scientific breeding.

It has seemed to me that the bee-keepers interested in the advancement of the races of bees used in this country would do well to join the American Breeders 'Association, and for that reason I have asked for this much space in this paper. I have no ax to grind, for I am not interested in this organization except as I am interested in the work done, and, needless to say, will receive no commission on new members. I would, however, urge any readers of this article who have any interest in the betterment of honey-production or any other kind of selection on bees to send one dollar to Professor W. A. Hays, American Breeders' Association, Washington, D. C., and become a member. By asking for the very valuable volume which has just been issued, one dollar makes one a member up to February 1st, 1906, and another dollar will be due before the second volume can be had; but the book is worth more than one dollar, and I would advise that it be requested. The dues for foreign members are two dollars, and for life members twenty dollars.

Bureau of Entomology, Washington, D. C.

[It is a fact, and not very much to our credit, that bee-keepers have made comparatively little progress in developing and accentuating desirable qualities in our bees. A little effort has been made in breeding for longer tongues, a little more of color, and better honey-gatherers; but we have not begun to make the progress that Dr. Phillips points out has been made in other kinds of stock. One barrier that stands in our way at present is our inability to control the male parentage of our breeding stock. But this need not necessarily be insurmountable, because there are numerous islands in the lakes that may be used for the purpose of improving and developing certain desirable characteristics.

The Root Co. has had in mind the leasing of some island—perhaps one in the Gulf of Mexico and one in Lake Erie, small enough in size so there will be no other bees on the island, and far enough from any other land where there would be contamination from other drones. This thing has often been dreamed of and talked of, but very little has ever been done except by D. A. Jones, nearly 25 years ago. For some reason he abandoned it before he gave it much of a trial.

I believe the organization that Dr. Phillips recommends is well worthy of our serious consideration.—Ed.]

SELLING COMB HONEY BY THE PIECE OR WEIGHT.

Plain Sections and Fence Separators the Solution of the Problem.

BY J. E. CRANE.

The proverb has it, "No question is settled till it is settled right," and so that old bone of contention, selling honey by the pound or by the section keeps bobbing up ever and anon. Doubtless it has not been settled right or it would keep still.

I cannot help but admire Dr. Miller's sterling honesty in the matter and desire to find out and do the right thing. Have I not been through it all over and over again; and who that has put up tons of honey that would run all the way from fourteen ounces to eighteen ounces to the comb, and has any sense of justice, has not felt uncomfortable at the thought that someone would doubtless have to pay just the same for the fourteen ounce comb that another would for the eighteen ounce comb? I have sometimes said to myself when packing such honey that I had done the best that I knew how. If the bees put only so much in the sections I did not see how it could be helped, I was not responsible. If the grocer sold by the comb he must be responsible. I had put the honey up honestly and did not feel responsible for how the grocer sold it, whether by weight or by the piece.

Again I have said to myself if I put all the heavy weights in cases by themselves the cases will run over weight or have more pounds than combs, and this will not suit the grocers; and if I put all the light weight sections that are fairly well filled and sealed in cases by themselves it would make them run too light, and so what could I do but put them together? Even then my cases would run from eighteen to twenty-one pounds to the case of twenty sections.

While I sympathize with Dr. Miller's view of the subject I still feel, yes, know you are right when you say "bee-keepers have not catered enough to the demands of the grocers." Still, I would not cater to the grocer in just the way you mention, by putting all the heavy weights in one case, the medium weights in another, and the light weights in still another, but rather by producing combs so nearly alike that they can all go together in the same case. Of course there will be some light weights at the close of the season that are not finished and these should be sold by themselves.

How to produce combs of even weight or very nearly so is my object in writing this paper, but before doing so let me show you how nearly I have succeeded. Last year I put up of my best grade of honey some 400 cases and of these I was able to mark about 370 cases (24 sections to the case) 24 pounds net, while the remainder, some 30 or 35 cases, were marked 23 pounds net.

This year we had three weeks of good honey weather and then three weeks of very poor weather and yet the combs run nearly as heavy and even as last year.

Perhaps I should say that if 24 sections weigh 23 ¾ pounds, 24 pounds, or 24¼ pounds, I mark it 24 pounds. If they weigh 22¾ pounds, 23 pounds, or 23¼ pounds, I mark it 23 pounds, thus avoiding all fractions. This suits the trade and as it is all sold by the section it does no harm to anyone. Now if I put 24 sections on the scales and they weigh 23½ pounds, I either remove a few of the heavier ones, and replace with lighter ones, or remove a few of the lightest ones, and replace with some of the heaviest ones I can find, and yet so even in weight have my combs run that it is often quite a task to select combs that will change the weight even ¼ pound.

On page 1119 of GLEANINGS you say, "But take that same grocer a case of sections, each of which will be almost exactly the same weight, so that he can sell them by the piece and see if he does not ask you to bring him some more of your honey "in the same way." Here Mr. Editor you have hit the nail square on the head. I cannot tell you how many letters we have received this season saying ship us from five to fifteen "more cases of honey *the same as the last.*" Alas! our honey was all gone weeks ago and still the demand keeps up and we could sell tons more if we had it.

Some years ago much was said in the bee journals about developing the home markets, and I had a nice show case made, and began, only to find that after I had a fair trade worked up, that others would step in and get the benefit of it; and to save bother and vexation I let them have it. Since I have been able to produce honey of very even weights and otherwise handsome this trade has come back to me with little effort, on my part, till I am now supplying every grocer in the place so far as I know to the exclusion of all other comb honey. Some time ago I met a former resident of this town who for many years has resided in Chicago. He told me that he was in a store in Chicago when looking up he saw a pile of honey with my address on it. He said to the grocer that the honey looked good to him as he had lived many years in the town from which it came and knew very well the man who produced it. Upon this the grocer told him that in Chicago they received honey from every quarter of the country, but of all the honey they received the honey with those marks was put up nicer and sold for a higher price than any other. And so I might go on but I will not weary you. I am not giving these facts to boast for I doubt if I take more pains with my honey than thousands of other bee-keepers, nor is my location any better, if as good, as that of many others, nor yet do I grade my honey with more care than others.

I could not in former years put it up so satisfactorily even if I tried my best. The weight of my sections was uneven in spite of my best efforts; and combs did not look so neat as now.

How have I been able to make the change do you ask? I can tell very quickly. It was by changing from the old style of two beeway sections to the plain four beeway sections.

While formerly I used a section 1⅞ inches wide with top and bottom 1⅝ inches wide, now I use a section 1½ inches wide on all sides, and the bees fill them very perfectly and much more evenly than the old style. This I attribute to the fact that the bees travel over all the edges of the section and are encouraged to build as near the edge as there is room.

I was at first puzzled to know why these plain sections looked so much better than the old style. Of course the projecting sides of the old style injured their appearance but if these were cut off still they would not average nearly so good as the four beeway sections or as even weight. Then I went to work opening first a clamp with the old style of sections and separators and then a clamp with the new style of sections and separators. I soon discovered what I either failed to notice before or had given little thought; that many clamps of old style sections, while well filled in the center, as you moved away from the centre the combs would be thinner and of course lighter in weight and less attractive, while the four beeway sections with open separators would run very evenly from the centre to the outside row.

When I first began using these sections and separators it was with the hope of a much larger yield of section honey. In this I have been somewhat disappointed and still there is reason to believe that quite an amount more is stored than with the old style of sections, as during the past two seasons we have been able to tier up many good working colonies once in eight days in the clover season, something that I have never been able to do before. Again the fact that the sections are more evenly filled shows that the yield is larger.

Of course there is in these sections some variation in weight and yet the difference is so slight that I do not feel as I formerly did about selling by the piece, and I am sure Mr. Editor should you see how evenly my combs run you would be satisfied that it was catering near enough to the grocers' wishes without making an extra grade, and Dr. Miller would be satisfied without stopping to weigh each one as it is sold. I am now more than satisfied as from year to year I have it to pack with the pleasure it gives me.

Indeed, I know of few things in the whole line of beekeeping that have given me more unalloyed pleasure than these no beeway sections with the separators to match, for the two must needs go together.

It is one of the surprises to me that others have not seen their value and adopted them.

It is true that the separators are much more expensive yet the advantages are so many and desirable that I feel it pays many times over.

Before closing I might add that bleaching all combs that are much stained, so they will all be of an even color or near it, adds to the attractiveness of a lot of honey as well as evenness of weight.

Middlebury, Vt.

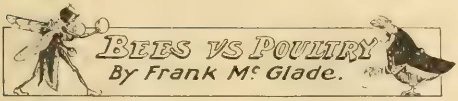
[I have read this article over with no little pleasure—not because it gives me a chance to jab Dr. Miller—"I told you so," but because it is a gratification to know that so excellent an authority as Mr. Crane backs up two of the doctrines I have been preaching for some time back, namely, selling comb honey by the piece, and producing said comb honey in plain sections. Mr. Crane brings out very clearly *why* some have regarded the selling-by-the-piece proposition as impracticable, not to say unfair and dishonest. Why? Because comb honey in beeway sections will vary considerably in weight, while that in plain sections will run much more uniform. As nearly as I can remember, those who have advocated selling by weight have been largely from the ranks of those who produced beeway-section honey; and those who have advocated selling by the piece have, conversely, been principally the plain-section men. Perhaps this will serve to harmonize the conflicting opinions, because the advocates of the one side have been talking about one thing while those on the other have had in mind another.

As I have traveled over the country I have time and again been impressed by the fact that some honey-producers of the old school were constantly working against themselves when they compelled the retailer to sell by weight. Some of them just would not sell that way, but by the piece. The result was that comb honey in beeway sections would vary to such an extent that one customer would get 25 per cent more for his money than another.

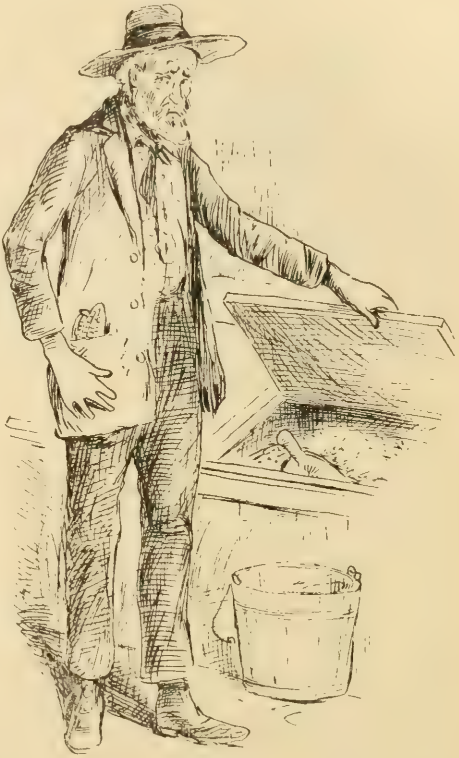
I have seen, too, that there was a growing tendency in favor of plain sections. The sales-records of our manufacturing department have shown that very strongly; but I have noticed that the "old-timers" who have produced honey for many years in beeway sections stuck to the old system. This is not to be wondered at, because age (and very properly so) grows conservative, and perhaps less able to appreciate the value of a new device. I feel it more and more so in my own case. For that reason I am not disposed to call my friends of the old school mossbacks. But I notice that beginners and bee-keepers of the latter days take kindly to the plain-section system because they have no old prejudice to remove. This is an article that may well be read with care by bee-keepers of both the old and new schools, for upon its truth or falsity hinges not pennies but dollars.—Ed.]

BEES VS POULTRY

By Frank Mc Glade.



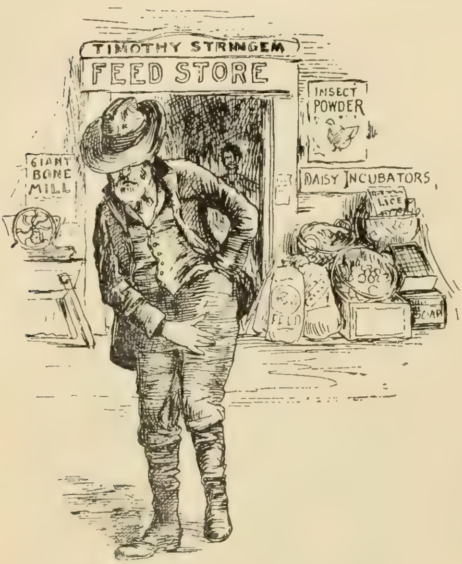
In all the history of GLEANINGS there never was anything in it which contained more truth to the square inch than the note by the editor to one of Dr. Miller's Straws, on page 1062, relative to "Profits in Poultry." I only regret it is in such an obscure place, and may be passed over by the hasty reader. Such statements should have a conspicuous place for every word is true. I never heard of any one paying off a mortgage by raising chickens to sell to the huckster, nor do I believe such a thing was ever done, because they cost too much. I gave the business a four-year trial with the renowned Barred Plymouth Rocks. I had to buy all the feed; kept a strict account, and I didn't make a cent. The last year I set 45 hens on 660 eggs, and hatched 330 chickens, and raised only about 200 of them that fall. I culled out 50 of the best earliest pullets for winter layers, and didn't get an egg till March 1, and by April 1 a third of them wanted to sit. So I just loaded them up and hauled them to Columbus and sold 'em—yes, sir, sold 'em, and quit the whole business. Plymouth Rock chickens are the best beggars on earth. They have it down fine. They just stand about the door and beg, and beg, and cry, and if you make up your mind *not* to give them so much they will put on such an air of helpless injured innocence that you feel like a heartless wretch and give them more feed, and they eat and eat, and get fatter and fatter, and a fat hen will not lay many eggs.



"I DIDN'T MAKE A CENT."

Now, when it comes to giving advice to those who are not familiar with either bees or poultry, as to which of the two is more profitable, I say bees, every time. In fact, there is no comparison, as bee-keeping is so far superior to chickens in every way.

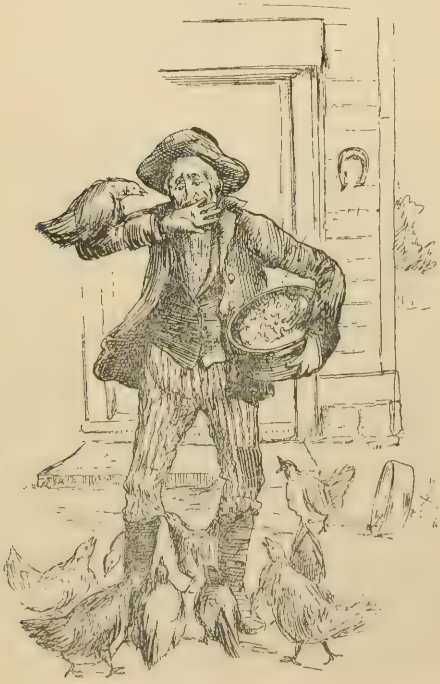
THE WORK WAS PLAY COMPARED TO RAISING CHICKENS.



"ALL THE MONEY I COULD RAISE."

But Bro. Miller wants to "see the figures," There they are.

Four years raising chickens; all the money I could raise for corn, wheat, oats, lime, oyster-shells, bones, insect-powder, grease, etc.; work enough to build 17 miles of railroad; cleaning coops, roosts, killing lice, mites, burying dead chicks, and, in the end no—*money*.

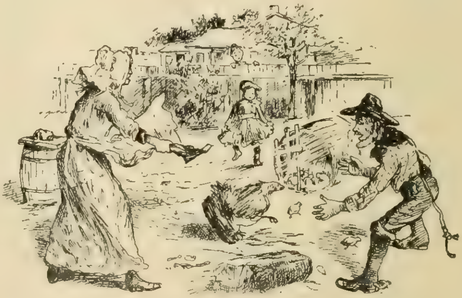


"PLYMOUTH ROCKS ARE THE BEST BEGGARS ON EARTH."

Now for figures on bees:

In 1902 I got an average of 30 lbs. per colony; in 1903, an average of 125 lbs.; in 1904, an average of 40 lbs.; in 1905, an average of 60 lbs.

In the four years the average was 255 lbs. per hive for the whole time, and was an average per hive per year of 63 lbs.; at 15 cts. per lb., $9.45 per hive per year.



"THE BEAUTIES OF POULTRY-RAISING."

I had the hives and bees left, more than in the beginning. The work was play compared to raising chickens.

Now, if Dr. Miller wants ocular proof that what I say is true, let him study closely the pictures in this, which are not overdrawn.

THE PRINCIPLES OF TROPICAL BEE-KEEPING.

Why Strained Honey is more Practical than Extracted; Cuban Honey and Perforated Honey-boards.

BY W. K. MORRISON.

When I wrote the article with the above caption it did not seem to me at all necessary to explain that practical details were left unsaid; in fact, it is unusual to state details when principles are at stake. This phase of the matter does not seem to have reached Mr. Leslie Burr, of Casanovia, Cuba, who proceeds to criticise my principles, and in the same breath supplies splendid data in support of my contentions. Mr. Burr admits that a considerable quantity of the Cuban honey is dark—too dark, and if all the bee-keepers in Cuba pursue the methods so sincerely advocated by Mr. Burr, then it is no wonder that their honey is dark—very dark. Mr. Burr does not believe in queen-excluders. I do, and so do the best authorities on bee culture—Root, Dadant, and Cook. It is too late now to decry the use of queen-excluders. So far as I know, the most successful bee-masters in the world use them—in fact, can't very well get along without them. If I wanted to ruin the bee-keeping industry in the West Indies I would advocate the non-use of queen-excluders. I know of two men occupying the same locality. One produces excellent honey; the other, honey that is no better than New Orleans black-strap molasses. The former uses queen-excluders and other up-to-date appliances; the latter does not use queen-excluders. Need I say more? Yes, I will say this much, after 15 years' experience in all parts of the American tropics, that, if tropical honey is to gain its rightful position in the world's markets, queen-excluding honey-boards simply *must* be used. Their use impedes the bees' progress very little if entrances are provided to the honey-chamber. As a matter of fact, the bees learn not to pass through the zinc at all.

It is true, some of our tropical honey is dark, but this does not necessarily mean inferiority. On the contrary, heather honey, which is dark and very thick, is classed in Europe as extra fine. The European buyers know how to detect whether honey is naturally dark or actually dirty. Some people do not believe this, and keep on shipping inferior honey. *The man who extracts from dirty combs has dirty honey.* Honey is so delectable and delicate a comestible that the slightest admixture of foreign matter injures it materially. Some people I know have the notion that strained honey is necessarily inferior. On the contrary, if well managed it is the best there is. All over Europe one finds exquisite honey that never saw the inside of an extracter. Irrespective of other considerations, the less honey is handled the better, and this is secured by the principles I advocate.

The West Indian bee-keeper has two great problems before him to solve—

1. To produce the largest possible amount of wax with a minimum of effort.

2. To produce honey of the very highest quality for a critical market 4,000 miles away. The freight is the same whether the honey be good, bad, or indifferent.

If he follows the principles I advocate he will certainly accomplish this without fail. Moreover, he will do it in less time and with much less labor than by Mr. Burr's methods.

The bee-keepers of West Texas pursue methods similar to mine, and I don't think they can be called unsuccessful. The only material difference is, the Texans are obliged to ship the comb and the honey together as a guarantee of genuineness. The West Indian strains the wax out, as that is mainly what he is looking after. He can get 33 to 35 cts. net per lb. for his wax in London; and if he can average 6 lbs. per hive per annum he is well satisfied. If he follows my principles he gets high-grade wax with very little labor. *No refining is needed.*

Mr. Burr would have us adopt the mussy, laborious job of uncapping and extracting a whole lot of combs in sizzling hot weather, with the idea of saving the combs for next season. The West Indian does not want to do this at all. He wants the wax to sell to some man in London. Mr. Burr admits the bees stuff wax around and through the honey-board. If he will only allow the bees a chance they will use the wax in making combs, and there will be no further trouble. I have seen bees stuff all the space between the top-bars solid full because they could build no comb, and didn't know what else to do with the wax, apparently.

The idea that it is ever so cold in Cuba as to keep the bees out of sections nights seems strange. I wonder how it is the bee-keepers of New Mexico, Colorado, and Utah ever get a single section to eat, much less to ship by the carload. They are a mile higher in the air, much further north, and in a climate where the nightly radiation is much greater. In Cuba the finest tropical flowers bloom all the year round without protection, and yet it is too cold for bees!

It is *heat,* not cold, that bothers the West Indian.

About straining honey. Mr. Burr has evidently had very little experience along this line, as he states it would take 80 bags to strain 300 gallons of honey. As a matter of fact, it takes six bags—one for each barrel if the barrels will hold 50 gallons each. No tank is necessary, but a funnel in the bung-hole of each barrel. It would be "just fun" to extract 300 gallons by my method—that is, to cut out the combs. It is the "lightning method."

Apparently Mr. Burr thinks one can not get a crop without an extractor. A German wax-press is also a honey-press, and a very good one. A big crop can be taken off with it alone. Mr. Burr does not believe in bee-escapes. I do, and there's where he and I differ. Many of the largest and most successful bee-keepers use them to their entire satisfaction.

Mr. Burr also ought to read what Mr. J. F. McIntyre, of Ventura, California, says about queen-excluding honey-boards. The letter is too long to quote here. See page 153, latest edition of the A B C.

Queen-excluders are just as necessary in the West Indies as in California and are a success in the hands of every one who knows how to use them.

THE "DISHONEST" ONE-POUND SECTION

Why there will Never be a "Standard" Section which will Invariably weigh an "Honest" Pound.

BY WM. MUTH-RASMUSSEN.

Every now and then appears an article in some one of the bee papers on the above subject. Various remedies are suggested, and principal among them is the problem of devising a section of such a size and shape that it will weigh exactly one pound, no more and no less, when finished. The writers seem to forget, if they have noticed it at all, that force of honey-flow, temperature, and other atmospheric conditions, strength of colony, building and storing propensity of individual colonies, and, finally, the part of the season, whether beginning, height, or end, in which the honey is gathered, are factors which determine the weight of the finished section more than do its size and shape. The 4¼x4¼x1⅞ section is called "dishonest" because many, perhaps the majority, of such sections do not weigh a full pound. That it *can* weigh a full pound and more is a fact which every practical comb-honey producer is aware of. Every year I have cases weighing 24 pounds net, and some that weigh 24½, 25, and even 25½ pounds. This is without any special selection except to see that all the sections in a case are as nearly uniform as possible; and the honey is in the ordinary 4¼x4¼x1⅞ separatored sections; 24 in a case.

Another consideration is that the specific gravity varies for different honeys. "In this locality" amber honey weighs appreciably more per cubic inch than white honey. The season here was a poor one. The first crop of alfalfa failed to yield any thing; but the bees worked slowly on buckwheat brush (*Eriogonum fasciculatum*), and continued to work on this after the second crop of alfalfa came into bloom and yielded something. In the same super, and often in the same wide frame, and at the same time, I would find sections of white (alfalfa) and amber (buckwheat) honey side by side, equally well finished, and *apparently* of equal weight except for the difference in specific gravity. If a certain size and shape of section could insure a full pound, we should need sections of different sizes and shapes for honeys of different specific gravity, in order that each section might weigh just one pound. What a mess we should be in!

The whole discussion of this subject makes me tired. There will never be a "standard" section which invariably will weigh an "honest" pound when finished. The sections in use at present are probably the nearest we can come to perfection. We can no more compel the bees to put an exact pound in a section than we can induce the hens to lay eggs of a uniform size and weight. Nature does not work by fixed weights and measures. (The diametrical size of the cells of honey-bees and similar insects may, perhaps, be an exception; but I can think of none other.) By combining human ingenuity with nature's work we may approximate desired results; but if exactness is accomplished it is only an accident and can never be depended on as an invariable rule.

When A. I. Root invented the 4¼-inch section he knew that it could weigh one pound, and that it would do so *under favorable conditions*. He never claimed that it would do so invariably; but as it could weigh, and often did weigh, one pound when filled, it was called a "one-pound section," and justly so. To show still further that he was perfectly honest about it, he proposed, as the older readers of GLEANINGS will remember, that comb honey should be sold at one cent *per ounce*. This would have been a fine thing if the price could always have been maintained. But, unfortunately, prices will fluctuate; and, still more, in some localities like this, we have no change smaller than nickels. One-cent pieces are scarce and seldom seen here except in the Sunday-school collection.

The fault is not with the section, neither is it with the producer. He has no control over the honey-flow, the atmospheric conditions, nor the time of the season. When he sells his crop (as a whole) he gets paid by the pound, not by the piece. The only remedy I can see is to sell a full case at the time, at the market price per pound for the honey. If consumers will insist on buying less than a case at the time, they should be made to understand that it is *impossible* to have *all* sections weigh a full pound, and the price must then be left to the mutual agreement between seller and buyer.

T. K. Massie, page 1072, cuts out all "light weight" combs and makes them into chunk honey. As he acknowledges that his new 4¼x5x1⅜ plain sections will, "when well filled out, average a shade over a pound," he ought, to be consistent, also to cut out all combs weighing over a pound and convert them into chunk honey, for he should be as honest toward himself as he intends to be to his customers.

Your footnote, Mr. Editor, to E. A. Newell's article, page 1089, is right to the point, and comes nearer to settling the question about honest or dishonest sections than any thing else I have seen.

Independence, Cal., October 30.

FOUL-BROOD EXPERIMENTS IN ENGLAND.

No Drug Treatment; Cure by Swarming and Exchanging Stocks, etc.

BY SAMUEL SIMMINS.

It is not generally realized that disease germs can be disposed of, or compelled to leave the living body, without resorting to drugs. Nevertheless, while knowing this to be an absolute fact, from practical demonstration, it is desirable to use some disinfectant to prevent the spreading of disease.

Though the state of bees living in such large numbers, with the healthy subjects in immediate proximity with the dead and dying, can not be compared with the condition of sick members among the larger animals or mankind, yet I am going to show how even the colony of bees may sometimes recover from foul brood without the slightest aid from medicine.

In many cases the complaint comes upon the bee-keeper while he is yet unacquainted with the nature of the malady and consequently it gets a tight hold of his stocks before he awakes to the fact; and his early endeavors to check the pest are half-hearted, and likely to do more harm than good.

WORN-OUT STOCKS EXCHANGING WITH STRONG LOTS.

In following my own experiments the reader will please understand that worn-out stocks with only a few old bees left may not be treated on the same lines as here laid down, with any hope of a successful issue. However, where there are also some strong lots the following case may be helpful:

During the early part of the past season an old client, a doctor, wrote me that he was afraid he would have to give up his bees, as they were going down with the plague. Several lots were still strong, some very weak. What could he do to cure, or should he destroy the lot? I at once advised him to remove all queens, and then, after three days, exchange hives, the weak with the stronger lots. I also told him to follow the izal treatment as advised by me, and in seven to ten days he was to place an Italian queen at the head of each lot. He followed out my instructions, and in a little over a month told me every stock was apparently clean, and progressing favorably. Nothing was destroyed in the process.

I have elsewhere explained how I exchanged places with two stocks, one of which was diseased while the other was quite healthy. The latter, consequently, received all the flying bees from the foul-brood stock, but, contrary to all preconceived ideas, the healthy stock remained perfectly sound. You see the hives were moved quietly on a warm day, with no previous smoking or internal disturbance whatever, so that none of the bees were induced to gorge themselves before flying in the usual course from their hives.

TREATMENT BY SWARMING.

Following upon this fact gained in management I was able to treat diseased stocks in a manner not hitherto attempted. Any lot not allowed to go too far could be swarmed by removing the old stock and placing a fresh hive with foundation upon the original site with their own queen, thus giving the diseased combs an interval of rest, always an important factor. No shaking took place, and as little disturbance as possible of the old combs. The moved lot, having none but young bees, presently have a queen-cell inserted, and by the time the new patches of brood develop, no sign of disease is to be seen, providing there is a fair honey-flow and the bees are energetic. At other times both lots require feeding, and, for greater security, with izal in the syrup. Sometimes I have sprayed the bees of the old stock with izal solution, and often I have not; but in all cases both the swarm and the stock have remained clean. In fact, the increase from the young queen in those original and once diseased combs has often permitted of a further division the same season.

Many of your readers will not believe these statements of fact; but I describe them exactly as they have occurred, not in one case, but many times repeated, with the same successful ending.

But right here let us consider another important factor bearing upon this matter. You may divide a foul-brood stock, leaving half the combs on the old site with the queen, while the other half of the combs and bees are to take a new situation. Without medication in either case, those left in the original hive, being mostly old bees, with the queen, will remain diseased unless an immune queen be added; but the portion removed having only young bees, and no addition being made to the brood-nest, will clean out the combs after a few days. I have found young bees, especially if Carniolan or Italian, never fail to do this effectually in the interval of waiting for a young queen to lay.

These successful results have been secured without medication during warm honey weather; but they were experiments, and there is no reason why the same processes should not be rendered doubly sure by the izal treatment.

But where do the foul-brood germs go? Of course, the bees carry out the bulk of them, and if insects do not take this refuse into the earth, the sun or rains must render it harmless. While the interval or break in the production of brood in warm weather, when every spore must germinate, appears to be fatal to the disease, there being no further soil for carrying forward the reproductive series of germs meanwhile, thereafter the renewed vitality of the young bees and young queen is an important factor in the case.

CURING WITH CLEAN BROOD AND YOUNG BEES.

Now suppose we take the case of a clean stock being used to regenerate one diseased. It will be an instance that happened under my own observation. A weak lot, slightly diseased, had a comb of hatching brood covered with young bees. given to it at short intervals. These youngsters simply cleared out every vestige of the disease, and, with a young queen added, not a speck of the pest appeared thereafter. Three such combs were given, and no medical agent employed.

At all times, while bees may be safely manipulated, the most urgent item is that of raising the natural vitality of the stock to the highest pitch. If honey is not coming in, then rapid feeding will create that well-known "roar" which is fatal to any disease-germ. Fresh food means fresh life, even if the food should not be medicated.

NEW VITALITY VERSUS DISEASE.

A few years ago a bee-keeper wrote to the *British Bee Journal* stating he had been surprised to get a large swarm in May from a stock which was badly diseased when put up for the previous winter. Upon examination (after swarming) he found the combs crowded with healthy brood, with the exception of the one back comb which was still occupied by foul matter, just about as they all had been the previous autumn. The bees evidently had no special need of that back comb; but there it was by the side of others perfectly clean. Force of vitality and new food were responsible for the improvement during a fine early spring. It is evident, therefore, that bees sometimes cure themselves under favorable conditions.

Some years ago I bought two strong stocks in early spring. The bees were vigorous, and the large patches of brood perfectly healthy. The hives being very old, I presently transferred the bees to new frames, and in doing so I noticed that two or three of the rear combs in each hive were solid with old candied honey, where it had remained for several seasons. Well, as soon as this was opened up for brood-rearing, the larvæ rapidly assumed the usual appearance of the foul pest. Evidently these bees had some time been troubled with the disease, but had been self-cured in the interval, so far as the combs used for breeding were concerned, the old store never being required.

I remember an American writer once mentioned that a heavy flow of melilot honey cured his diseased stocks. Some kinds of honey may be more likely to aid the bees in checking the pest, but the greater vitality ensured while honey comes in freely is likely to have been the more important item in freeing his apiary from the trouble.

IMMUNITY.

Finally there is the question of immunity. I have traveled all along this line too, and will describe one or two of many experiments. Of two diseased stocks, one had a Carniolan queen given it, and the other an imported Italian. Each had a sixth slab of candy along in April. By the time the young bees were hatching freely from these queens, no disease could be found in the combs.

Several purchased stocks showing disease in the spring were given queens from my specially immune Italian strain. From a short time after these bees were hatching, the complaint rapidly declined, and the combs were soon covered with a clinging mass of bees, so dense as to hide the surface of the combs.

I have offered these examples hoping to show that the disease can be cured without destroying any valuable material whatever, and even without medicine; and therefore no difficulty ought to be found in disposing of the trouble by using, in addition to such manipulation, so simple and effective an agent as izal has proved itself to be, both as a cure and preventive.

ITALIANS VS. NATIVES.

Recently you gave an extract from the *British Bee Journal*, where the writer endeavored to show that the more prolific Italians would of necessity pile up greater masses of dead and putrid brood simply because they would attempt to breed more extensively than the natives. Such a statement is theory only, and is not founded upon actual practice. If the combs are occupied by foul matter, no more eggs can develop, even if deposited, until some of the cells are cleaned out; and it is from the fact that Italians, and especially such bees bred by selection for the purpose, are more determined to clean out the foul matter, that they gradually but surely get the upper hand of it. If any bees are inclined to retain the rotting mass of brood it must be the blacks, as they possess the least energy in the direction of brood-rearing, and are so little inclined to clear out the diseased matter.

BACILLUS ALVEI—NOTHING MORE NOR LESS.

I can not find that there is any distinction to be made between a malignant type and a so-called mild case of foul brood. The only difference is in the length of time it has been neglected, and its wider scope for mischief as it extends further throughout the combs. The cure is the same in either case.

PRACTICAL CONCLUSIONS.

With the izal treatment there is no need to destroy any valuable material; and any lot not too far gone may be renovated, as shown, by fresh combs of brood and bees, or by exchanging with stronger colonies. In other cases it has been seen how, by disposing of the old bees by swarming from the original combs, as well as by removal of the queen with or without swarming, the greatest assistance is given to the owner in effecting a cure.

[Izal is a disinfectant like formaldehyde and carbolic acid. It is highly recommended by Mr. Simmins in his book, "A Modern Bee-farm." So far as I know it is obtainable only in England, although we have purchased a small quantity for the purpose of testing.

Regarding the general subject of foul brood, there is much for us to learn, and, perhaps, to unlearn. While Mr. Simmins' ideas may not be entirely orthodox from the standpoint of American practice, yet he has struck out in some new fields that jt may be well for us to investigate.—ED.]

WHAT COLOR SHALL WE PAINT OUR HIVES?

Black, not White, Preferred; an Interesting Article.

BY ALLEN LATHAM.

Though the advisability of painting hives at all has been questioned, and not a few bee-keepers advocate leaving hives unpainted, whenever (if hives were to be painted) the proper color has been inquired after, the answer has invariably been, "White." I shall try to show in this article that here we have another instance in which error has been upheld in the practice of agriculture.

To understand why one color may be better than another, and why black and white are brought into opposition in this matter, one must be familiar with the laws of absorption and radiation of heat. There is a law in physical science which, put in simple words, reads: "Good absorbers are good radiators." This means that a surface of such a color or texture that it readily gains heat will lose that heat, or other heat, with equal readiness. It is also true that a surface which gains heat slowly will part with heat slowly by the process of radiation.

The first half of each side of this law is well known; namely, that some surfaces absorb heat rapidly, others slowly. It is because of this knowledge that mankind, especially the gentler half of it, has decided to wear white in summer and dark colors in winter. Whether this choice is wise is open to doubt.

If one studies nature closely he finds that most animals which live in warm climates are dark in color, and that animals of white fur must be sought in the frigid zones. Of interest in connection with this fact is the change of fur which certain animals of the temperate zone undergo contemporaneously with the shifting of the seasons. It has been argued that animals put on white fur in winter, and that animals of the frigid zones are clothed in white, for purposes of concealment from foes or from victims. Personally I believe this to be a minor cause, if any cause at all, and would argue that the true cause must be sought in the phenomenon of heat-radiation.

Before going deeper into the consideration of the great question which we are approaching, I wish to suggest a simple experiment which anybody can easily try, and from which he may gain a deeper insight into the philosophy of heat radiation.

Let the reader select two empty tomato-cans and paint one white, the other black, a dead black by preference. Pour boiling water into each, and, setting them a few inches apart, hold the hand midway between them. It will quickly be seen that the side of the hand which lies next the black can is sensibly warmed. Let the experimenter be blindfolded, and, while his hand is extended, let a second person shift the cans. If his sense of heat is at all like mine he can without error tell which is which.

The experiment just described furnishes solid ground for certain deductions, and will let me say: "Dress in white if you are to work in the sun; in black if your work is in the shade." "Animals are clothed in white in winter that they may the more completely retain their own heat." "Bee-hives should be painted white if exposed to full sunshine, but black if protected from the mid-day sun."

If any doubting reader will experiment with white shirt and with black shirt, in sunshine and in shade, he will quickly give assent to the statements in the preceding paragraph. When the thermometer is 95 degrees and creeping up, put on a thin black suit and sit down in the shade—better than ice water, better than ice cream.

A few years ago I began covering my hives, side walls, and top, with "paroid" roofing-paper. This was done for the purpose of keeping out the wind and wet. Phenomenal results along other lines led me to consider the color question. This paper, at first a grayish black, soon becomes almost black. I observed that colonies in hives covered with this paper never swarmed where well shaded, and that, in the trial of wintering, all colonies thus housed fared splendidly.

Now, a colony of bees has not only the heat of the sun to get rid of but its own heat. If a white hive is in the shade it will not absorb heat rapidly, to be sure; but it at the same time can not lose heat readily. Hence the bees must ventilate vigorously during a hot day or night. If a black hive is in the shade it will not absorb heat rapidly, but it will let heat escape rapidly. *A colony in a black hive which is well shaded does not ventilate much.*

In the sunshine, however, the white hive gains less heat from outside than does the black hive, and the black hive may, and probably will, gain heat on a sunshiny day more rapidly than the radiation can take care of it. Still, toward sundown, while the white hive still has its front covered with bees, and while the little insects are wearing themselves out trying to cool off their home, the front of the black hive will be free from bees, and there will be but few bees fanning the entrance. These are facts.

BLACK THE BEST COLOR THE YEAR ROUND.

I consider that black is the proper garb for hives in summer, provided the hives can be protected from the mid-day sunshine. If unprotected there will be too many cases of melted-down combs. It is in winter, however, that the greatest gain comes from the use of the black hive.

The last statement may seem to contradict a previous statement concerning the furs of animals, but allow me to explain. Possibly, during the winter, surely to be exact, a white hive will lose less heat by radiation than will a black hive; but when one studies further into the matter he will find that color of the hive will have but little to do with the loss of heat from the cluster of bees inside the hive. This cluster is surrounded by cold air most of the time, and hence little heat will get into the walls of the hive to be radiated, regardless of the color of the hive. How, then, does black help in winter?

That last question is one which every beekeeper should know the answer to, and he should have unbounded faith in that answer. What kills most bees in winter with the exception of bad ventilation? Is it not too long a confinement in a semi-torpid cluster? Is it not true that bees wintering out of doors must break cluster in order to eat and live? A white hive does not help in this matter, but a black hive does.

During every sunny day in winter the front wall of the hive, facing south, if painted black, gets thoroughly warmed, freed from frost, and dried out. The bees loosen out on that side of the cluster, stretch their limbs, and are happier.

During the hard winter of 1903, when so many lost their bees, my colonies in black hives came through alive except two which starved. Again, last winter there was no loss except one colony by an unforeseen accident.

What I have said is based upon experience with hives having a dead-air space. I do not know whether single-walled hives would show the same results. Those who wish to investigate this can do so by tacking a piece of tarred paper over the front of a few hives for trial this coming winter.

This article has already reached undue length, although I have but barely introduced the subject. Let me close by saying, if one wishes to keep bees successfully the year round, let him use black hives set in the shade of trees which shed their leaves in fall, so that the sunshine which is not desired in summer may be of benefit during the cold of winter.

THE HOFFMAN FRAME PREFERRED.

The Propolis Matter not a Serious One.

BY S. J. GRIGGS.

The writer notes with interest the article which appears in GLEANINGS, November 1, by Mr. Alpine McGregor, on the Hoffman frame, and the writer greatly regrets that he has not the time to write an article on this frame himself. We are unable to understand how Mr. McGregor can condemn the Hoffman frame in the way he does. There is scarcely a large apiary in Lenawee County, Michigan, which the writer has not visited, and will state that the Hoffman frame is certainly the most used at this place. We notice your explanation, where you speak of propolis depending considerably on the location. We notice by our own yard that this is where the trouble lies with the possible condemnation of the Hoffman frame. At a yard we have located at Addison, Mich., where the crop is principally white clover and basswood, a person could not get propolis enough to fill a good-sized sugar-bowl, and there are over 100 colonies located at this place, and we should like to see anybody go into this locality and try to get the bee-keepers to use any thing but the Hoffman frame. We think they would be up against a good stiff proposition. Then take it at our Whiteford Center yard, where the flow is principally fall honey, and we notice a considerable amount of propolis; but the Hoffman frames are no more of an annoyance to us than the old-style Langstroth. If Mr. McGregor had very much moving of his bees to do, we think he would realize the great value of the Hoffman frame. It is only natural for people using a certain hive all their life to dislike to change to something else, and we presume this is the case with this gentleman, although, from the experience we have had, the Hoffman frame ranks in the lead.

We can only speak in words of loudest praise for this frame. Our customers are all well pleased with it, and we are satisfied that it is here to stay.

Toledo, O., November 9.

WINTERING BEES IN A CELLAR WITH THE ENTRANCES BLOCKED.

BY T. J. QUAIL.

As the time of year is near at hand when all bee-keepers must prepare their bees for winter, I will give my experience in the past three winters. The first year I wintered on summer stands; in the spring their honey was nearly all gone, and only a handful of bees left in each hive. The next winter I put them in our house cellar; put a block across the entrance, and left them blocked in. I took them out in the spring, and every colony was alive and practically as heavy as when I put them in.

Last winter I put 38 colonies in the same cellar, Dec. 12, and blocked them in as before. I opened the outside cellar door nearly every day, not to give the bees air, for I don't think they need it, but to keep the cellar dry, and that, I think, is essential in cellar wintering. I took them out for a fly March 27, and left part of them out two days. All were put back. The day I took them out they were perfectly contented, while those left out two days roared, and I had to take them out and put them on the summer stands. I used eight Hoffman-frame hives, and did not weigh them when I put them in. When I took them out in the spring several of the hives weighed 64 to 66 pounds, and all hives seemed to be practically as heavy when taken out of the cellar, as when carried in. I shall put 82 colonies in the cellar this winter, weigh all of them, and note how much honey each colony consumes. I would advise all bee-keepers who have not dry cellars to put their bees in, and if they must leave them out doors, to give their bees all the protection they can—the more packing around and over the hives the better. Bees left outdoors should have an empty super put on, and filled with chaff packed in a gunny sack. Hives may be put close together on the south side of a building, and packed for winter. I give late swarms a frame or two in the fall; and if any feeding is needed I feed in the spring. If I were to winter my bees outdoors I would block up the entrance to keep out all the cold I could. In my opinion it is cold and dampness that kill bees in winter.

Miller, Neb., Oct. 20.

[The plan of closing the entrances of the hives for wintering, while it would work in a few isolated cases, would most surely lead to disaster in most cases. Some of our entrances got closed last winter by ice, with the result that the bees all died. This has been the almost universal experience. I would advise Mr. Quail to abandon the plan before he has a heavy loss.—ED.]

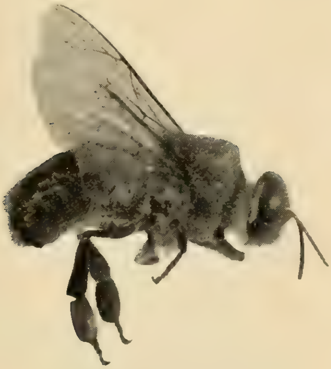


Fig. 1.—The Italian honey-bee—drone.

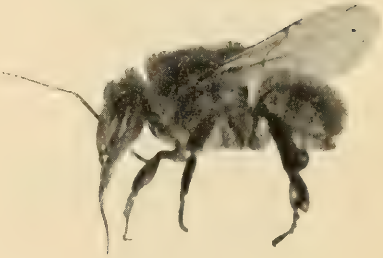


Fig. 2.—The stingless worker.

THE STINGLESS BEE.

A Comparison of the Melipona with the Mellifera; the Relative Importance and Possible Value of the Former.

BY STEPHEN N. GREEN.

[The following article was prepared by one of our men, Mr. Stephen N. Green, who was in Cuba one season helping to run our yard of 500 colonies. While on the island he made a special study of some varieties of stingless bees found there, and on coming back to Medina he continued these studies, keeping up a correspondence with several in the tropical regions, including our correspondent Mr. W. K. Morrison. The latter sent Mr. Green various specimen lots of the stingless bees that he had secured in the tropics. Among these was a mailing-cage of some extra-large ones, including a queen. As these arrived late, and as it would be impossible to unite them with ordinary common hive bees, we concluded to do the next best thing—take some micro-photos of them. We accordingly sent Mr. Green with the bees to Prof. Hines, at the Ohio State University, Columbus. The photos were taken, showing the bees about three times larger than life size, and the same are here reproduced. The illustrations alongside of the common honey-bee, also enlarged, will give an idea of their comparative sizes and general structure. Unfortunately, we were unable to learn the name of this variety or the species. For the purpose of more ready distinction it will be noted that Mr. Green refers to the common hive bee as *Mellifera*, and the stingless variety under consideration as *Melipona*. The former is the name of a species of the genus *Apis*, and the latter the name of the genus for stingless bees in general; but as we have no name for the particular species here shown he calls it by its generic name.—Ed.]

To understand clearly the stingless bee question it is well first to have fixed clearly in our minds its position as to natural classification, and especially its position with regard to the common honey-bee. Both belong to the same *family* but are separate *genera*, the scientific name, *Apis*, bejng applied to our common honey-bee, and *Melipona* being the "stingless bee." The *Trigona* is another genus, but it is so nearly like the *Melipona* that it is often classified as such.

The object of this article is not to dwell upon the species of melipona so much as upon one variety, which, to the bee-man's standard, is of the most importance. To this species and variety I am, unfortunately, unable to give scientific names. The genus itself is so little known, and this variety so rare, that some of the best authorities in the United States have so far been unable to classify it definitely. This variety finds its home in the Orinoco region of Venezuela. Only a few colonies, so far as known, are kept elsewhere.

To give a more definite idea of this, the largest melipona we yet know of, I have obtained micro-photos taken from life, showing the variety alongside of the Italian honey-bee. In such photos the magnification of each set is the same (about three to four diameters), so that the relative size is plainly shown.

Fig. 3 is the common every-day queen; Fig. 4, the melipona queen. The difference between them is very striking indeed. First, it will be noted that the entire size of the melipona queen is smaller than mellifera. Next, the long graceful abdomen of the mellifera contrasts strongly with the globular abdomen of the melipona. In short, the mel-

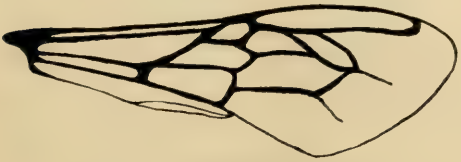


Fig. 12.—Wing of Italian honey-bee..

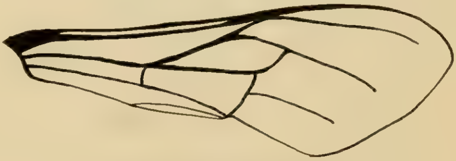


Fig. 11.—Wing of stingless bee.

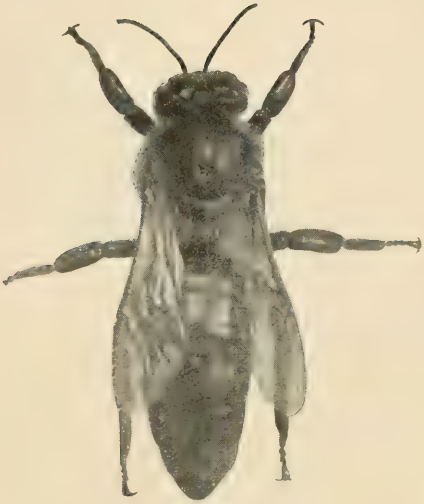


Fig. 3.—Honey-bee—queen.

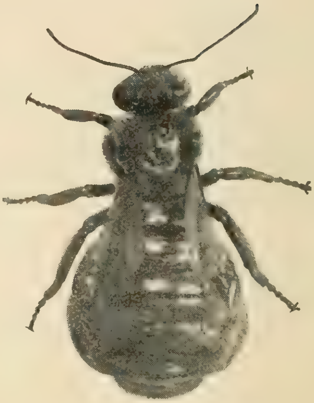


Fig. 4.—The stingless bee—queen.

lifera queen is much more beautiful than its clumsy relative. Figs. 5 and 6 show the side views of these queens.

The difference between the workers of the races is much less marked. Figs. 7 and 8 give the top views of these bees. Aside from the shorter abdomen of the melipona worker it might be easily mistaken for the mellifera worker. The side views, Figs. 9 and 10, show more distinctly the difference, the abdomen of the melipona appearing still shorter in comparison. Figs. 1 and 2 illustrate the mellifera drone and melipona worker. For still further comparison I have taken the measure of the tongue and thorax of the workers. The thorax measure of the melipona is about .156 inch, and the mellifera .158. The tongues of the melipona run from .16 to .20; and the mellifera, as we all know, average from .18 to .23. These figures are not supposed to be exact, but will show the approximate measures of the few specimens I have.

The wing of an insect is of as much value to an entomologist in the identification of species as the leaves of a tree are to a botanist. Every species has some distinctive marking of veins and cells that vary but a trifle in the individual. The veins and cells of the melipona and mellifera are quite different, as may be seen by the drawings, Fig. 11, the former, and 12 the latter.

The side view of the melipona, Fig. 9 shows the immense pollen-baskets of this genus. As pollen-gatherers the melipona are, no doubt, superior to the mellifera. Not only do they carry larger loads, but, as verified by my observation of the little stingless bee in Cuba, they work when the honey-bee does not. Beginning early in the morning, and working late at evening, it flies in bad weather when the mellifera does not venture out. Of course, this pollen-gathering quality does not rank in commercial importance as does the honey-gathering of the mellifera, but it is still of value in another way. The cross-pollination of flowers is coming to have more and more attention from the agricultural scientists. There is, undoubtedly, much room for improvement in this respect. More bees means more fruit; and the introduction of another race of bees means better pollination of flowers. The introduction of great pollen-gathering bees, such as the melipona, would doubtless mean an improvement. The superior quality of

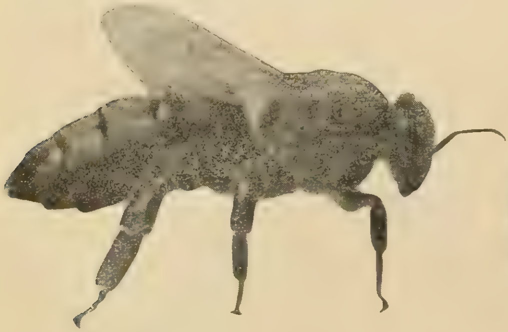


Fig. 5.—Honey-bee, queen—side view.

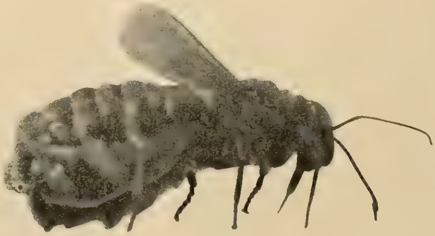


Fig. 6.—Stingless bee, queen—side view.

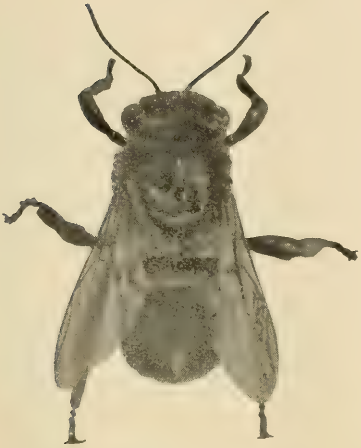


Fig. 7.—Stingless bee—worker.

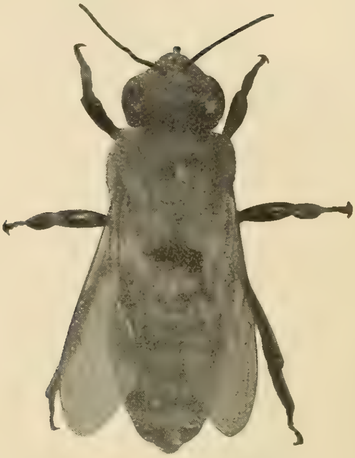


Fig. 8.—Honey-bee—Worker.

the Mexican vanila is attributed to these melipona because of this ability to work when other insects will not. The very slightest increase of the seed or fruit of any of our great crops will more than justify their introduction.

The honey production of the melipona at the present is of no great importance. The large melipona illustrated has been reported to yield as much as eight quarts at one extracting. The smaller melipona of Cuba gives only a few pints a year. The honey is of a light amber color, light in body, but of a very pleasant flavor. This honey is esteemed by the native Cubans as a remedy of great value, and finds ready sale at good prices for this purpose. While the yield is not yet of much importance, the yield of the mellifera under similar circumstances is not much greater. The surplus of the honey-bee in an old log or box hive can scarcely be counted as of commercial importance. Who would not say that, after the study and work that has been bestowed on the mellifera has been placed on the melipona, the yield of the melipona would not increase as has that of the honey-bee? Surely there is a chance of improving this stingless bee to a great extent. True, the method of storing honey is radically different between the bees; but do not the great honey-cups of the melipona offer the ingenious inventor a chance upon which to improve his talent? Again, it is true that this melipona has not been wintered successfully in the North; but it is possible that, when we learn their habits better, we may be able to do this. At present Florida and California seem to be the only places outside of our island possessions in which these bees can be kept the year round, though it is entirely possible that they can be wintered in some other favored regions where the winters are mild.

"But," you ask, "can this stingless bee defend itself against the bee armed with a fatal sting or any other enemy?" I think it can. They are remarkably quick in action. The honey-bee is slow and clumsy compared with them. Then they build their nests and guard them so that it is next to impossible for the honey-bee to enter. If we can induce them to live in hives with wide entrances, no doubt a honey-bee-excluding zinc built for this special purpose can be devised. When

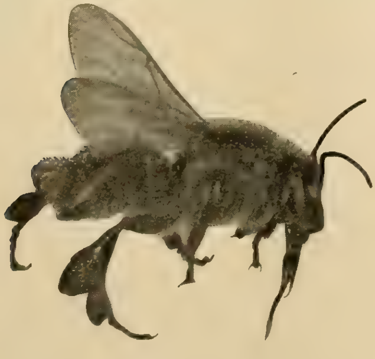


Fig. 9.—Stingless bee, worker—side view.

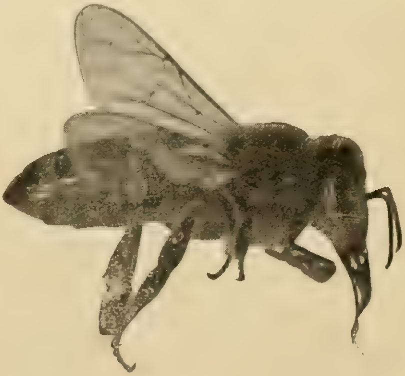


Fig. 10.—Honey-bee, worker—side view.

these bees are once angered they make an attack with all fury. Their lightning-like sallies are certain to scare one, as the painful stings of the mellifera under such conditions are surely remembered. The bite of the melipona is not painful; in fact, they can not cut the tenderest skin; but they pinch and cling with the tenacity of a bulldog, and do not hesitate to attack anything. However, these bees are not easily aroused, and attack only when their nest is broken. They are, indeed, extremely docile.

One strange thing about the melipona is that the bee-men have failed to discover drones in the nest. All of the family *Apidæ* have what corresponds to the queen, drone, and worker of the honey-bee, so the stingless bee can be no exception. However, the life habits of the different genera are not alike in many details. The drones of some of the varieties of the melipona are reared at long intervals under some special conditions. The drone of this large melipona no doubt exists, but has so far escaped the notice of the bee-keeping fraternity. Only long scientific investigation can probably clear this point. Another strange thing is about swarms. Like drones, these melipona seem to be non-swarming. But how do they increase? The natives know enough to increase them by simply dividing; but how they increase naturally still remains for the patient investigator, and he will doubtless bring to light some interesting facts.

The nests of the melipona are radically different from those of the mellifera. Their construction seems to be something of a hybrid between the honey-bee and the bumble-bee. The color of the brood-comb is something like that of the bumble-bee, being light brown in color, tough and fibrous. The combs are built in parallel tiers held apart by columns of wax. The cells are constructed of a shape similar to that of the mellifera, but in only one layer, like that of a wasp, and not in double sets with a common base as with the honey-bee. The honey and pollen are not stored in the brood-combs, but separately in large egg-shaped cells scattered along the edges of the brood. These cells are quite large, and hold considerable quantities of honey or pollen. The brood-rearing of the melipona, too, is different from that of the mellifera. The brood-cell is first filled with a mixture of honey and pollen, then the egg is laid on top of this mass, and the cell is sealed. The necessity of this is seen by the shape of the abdomen of the melipona queen, which would not allow of the laying of the egg in the bottom of the cells as in the case of the mellifera. As to the time taken to develop a perfect worker or queen I can not say, this being another point that remains to be investigated.

It is a self-evident fact that a stingless bee would be of untold value providing its honey-gathering capacities were as good as those of the mellifera. Burbank has bred the spine from the cacti, and will in time make the desert blossom as the rose. The man who breeds the sting from the bee will make the air hum with bees where no bee flew before.

The large melipona which I have illustrated is one of a great genus found in Mexico south to Argentina. A large melipona was domesticated by that great nation of Incas of South America long centuries before the Spanish Conquest. It may be that we shall find a bee more highly developed than the one we now have, in the little-known central Andes region, where this ancient civilization made its home. I am doubtless optimistic regarding these melipona. Many consider them absolutely worthless as a commercial asset. I accord them but little value as yet.

Some others of them are large enough to receive attention from the bee-keeper. The small stingless bee found commonly in Cuba is the most familiar. Reports come from Mexico of a large green bee and another black bee. From South America comes the report of a white bee. I have yet to obtain authentic information regarding these. Some hope to find a still larger bee than is now known, and there is no reason why such should not exist. The fact is, the genus is comparatively unknown. Indeed, such scientific data have been gathered, but it is very scattered, and would take months of labor and waiting to present in form to the bee-keeper such as would be of interest and value.

I am indebted to Mr. W. K. Morrison, of Porto Rico, for the specimens of the large melipona reproduced here. Mr. Morrison deserves much praise for the discovery of this large melipona, which to date is the best of its kind known. He obtained these bees only after long waiting and a considerable personal risk. I am also indebted to Prof. J. S. Hine, of the Ohio State University, for aid in making the micro-photos and for information on this subject.

* * *

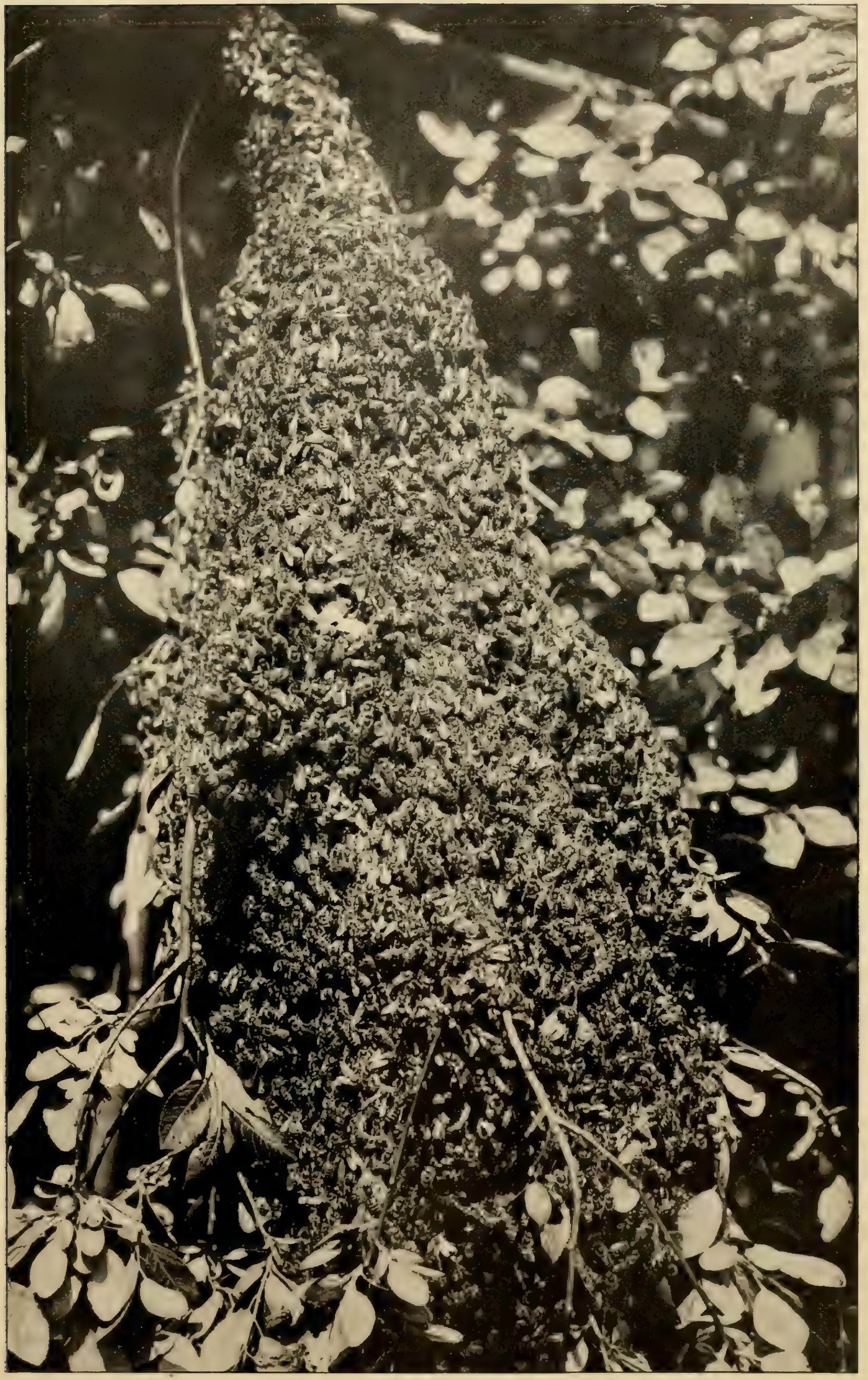
ALEXANDER'S APIARY; THE MAN, THE LOCATION, THE METHOD.

The Observations Made During a Visit Taken in the Interest of Gleanings.

BY D. EVERETT LYON, PH.D.

Until a year or two ago it was unknown to the bee-keeping world that the largest apiary in the United States is located at Delanson, N. Y., and that its owner is E. W. Alexander.

Most of us had learned to look upon California and Colorado as the land of big things, especially in the line of apiaries; but we awakened one morning to the fact that the largest apiary located in one yard is that of E. W. Alexander. We learned that in his home yard were 750 colonies, and that last



FIRST PRIZE PHOTO OF A SWARM OF BEES, BY A. L. ERRETT. SEE EDITORIALS..

year his crop of honey, all extracted, was 70,780 lbs.

While we did not doubt Mr. Alexander's statement of facts for an instant, yet we felt it would be a source of great interest to the readers of GLEANINGS to have a visit made to this colossal apiary, and an account given of the man, his location, and his method. The writer was, therefore, sent by the editor of GLEANINGS to give a write-up of this marvelous project, and I can truly say the sight was wonderful. The roar of those 750 colonies as their field bees went and came is simply indescribable.

Delanson is located about 30 miles west of Albany, about half way between Albany and Cherry Valley, in the midst of the buckwheat section of New York, and a finer landscape is hard to find.

Mr. Alexander's home is about a mile out of town, and nestles against the hillside, from which a glorious view can be had of the surrounding country and of the village of Delanson, nestling in the valley. The Alexander home is on a farm of some 130 acres; but as its owner devotes his whole time to his bees the farm is mostly sown to grass, and produces some 200 tons of hay a year.

Brother Alexander himself is, I should say, about 60 years of age, so far as the years go, but has in him a youthful heart.

One has but, like the writer, to spend a few days beneath his hospitable roof to learn that he is fully abreast of the times in the field of apiculture. The secret of his success is found in his statement to the writer, namely, that he would be willing to sacrifice a whole year's yield of honey to carry through some experiment that would help him in the future.

Another element of his success is in the fact that he is a lover of bees, and takes real pleasure in working among them.

E. W. Alexander has been a bee-keeper ever since he was eight years of age, and we were very much entertained as well as amused by his description of how he used to do things in those days. So that from boyhood Mr. Alexander has been a bee-keeper; and so modest has he been of his success that, though he has been doing things on a gigantic scale for years, it remained for others to discover him, and that at a very recent date.

Mr. Alexander's home is one of refinement, and pervaded by a fine religious atmosphere, and presided over by Mrs. Alexander, one of the noblest of women, with a big motherly heart—one of the kind of women who make you feel you are a better man for having met them.

From the bee business Mr. Alexander has been able to start his sons in other lines of business, and he and his wife have lived to see them all do well. In fact, our friend stated to me that it was a source of great comfort that all of their children had turned out well, and had never caused them shame or heartache. Happy the parent who can say likewise; and it is all due to the atmosphere of that home, and the example of a godly father and a devoted mother.

For the last two or three years Mr. Alexander has had in partnership his son Frank, a noble fellow, and a natural-born bee-keeper —a worthy son of a worthy sire, who, happily married, lives with his wife and two children down in the village. So much for the man; now a few words regarding

THE LOCATION.

Mr. Alexander has been particularly fortunate in this respect; and but for this it would not be possible for him to keep in one yard so large a number of colonies. This part of New York was, years ago, the scene of many a bloody battle between the Indians constituting the Five Nations, and the other tribes from the West; and history records the massacre of the whites at both Cherry Valley and Schenectady. But now for nearly 200 years this country has been given up to husbanding; and, because of the peculiar adaptation of the soil, buckwheat is a staple annual crop.

For 200 years or more this has been a big and staple crop; and for miles around, at time of bloom, the mountains seem covered with virgin snow. I timed my visit to be there at buckwheat bloom, and the sight was well worth the trip. The buckwheat comes into bloom about the last of July, and thus continues until about the 10th of September, and forms the main crop of honey. The main honey-flow, coming as it does so late in the season, gives Mr. Alexander a fine chance to have his colonies all built up strong for the flow—a condition which would not be always possible where the flow is in June or even July.

There must be at least 5000 acres of buckwheat within range of his bees; and the threshing-machine men say that, as soon as they begin to get within the zone visited by the bees, the buckwheat crop is better in quality and quantity, showing that the bees are benefactors to the surrounding farmers as fertilizers of the buckwheat blossom. And this is a fact overlooked by many bee-keepers; namely, that the sole mission of the bee is to fructify the honey that it stores. Goldenrod also grows in the greatest profusion, and Mr. Alexander believes it gives him as much honey as buckwheat. I know from tasting a sample that its presence in buckwheat greatly improves it.

Like all country districts there is some sweet and white clover, also basswood; and a crop of honey is often harvested from these before the buckwheat bloom comes on; but nevertheless the buckwheat crop is the main one and one that seldom fails.

It would hardly be fair to leave the matter of location without stating that it would be the height of folly to say nothing of the violation of ethical principles for other bee-keepers to start up near our friend.

I personally do not believe that the country will support any more bees than are there; and as our friend has pre-empted the territory he should not be crowded by interpolators.

To conclude the matter, a word about

THE METHOD.

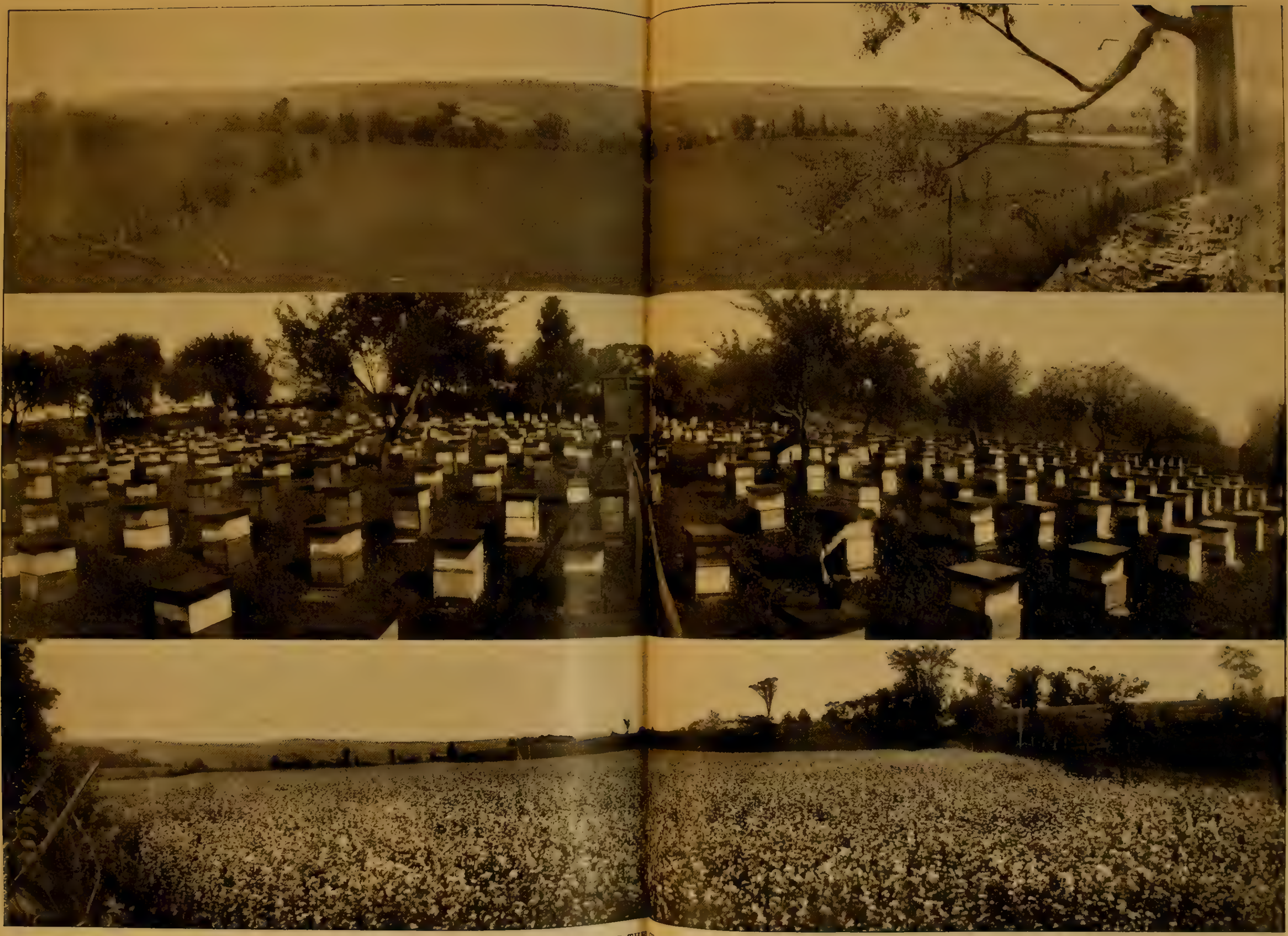
Of course, there is much hard work to be done in an apiary like this; so, in addition to himself and his son Frank, our friend had two other expert assistants, and the quartette was kept on the jump all of the time.

The bees are wintered in the cellar of the dwelling; but this year Mr. Alexander is building a special repository for his charges; and from the description I received from him the other day it is an expensive and elaborate affair with honey, hives, and extracting-house combined.

The bees are set out in the spring; and such colonies as need it are fed for brood-rearing, and requeening is practiced when necessary.

The honey is extracted when ripe, and runs from the extracting-house through a two-inch iron pipe to big storage-tanks holding

FRANK ALEXANDER (SON OF E. W.). "These are nice warm gloves."



THE ALEXANDER BEE-RANGE, APIARY, AND ONE OF THE CHARACTERISTIC BUCKWHEAT FIELDS IN THE VICINITY.

5000 lbs. each, and in a few days it is run off into wooden casks holding about 160 lbs. each, and in such shape it is sold at wholesale.

Mr. Alexander raises his own queens, and is in touch with all of the detail of management; and in conversation with his hired assistants I learned that they esteemed it a great pleasure to work for such a man.

Though somewhat advanced in years our friend has a youthful step; his eyes fairly twinkle as he talks about the bees, and he has no secrets of management that he keeps from his fellow bee-keepers.

My visit to their home lingers as a sweet memory; and as I left its portals it was with the prayer that there might be more and more of such lovely Christian homes in our land; for these things make life worth the living, act as a sweetening leaven in society, and at life's close cheer the last moments with the thought that life has not been in vain, and that one has lived to build up, not to tear down.

[I fully indorse all that Dr. Lyon has said concerning Mr. Alexander; and it has been a wonder to me how it was possible that so successful a bee-keeper has been operating for these thirty years on those York State hills, with little or nothing being known of him in the bee journals. Perhaps it is well, for now we are permitted to enjoy the ripest experience of one of the most successful and at the same time most extensive bee-keepers jn the world.

Mr. Alexander is quite alone in the distinction that he operates more bees in a given locality than perhaps any other man in the world. While he formerly worked out-apiaries, he has now demonstrated that he can make more money by keeping his bees all in one place than wasting valuable time on the road that might be more profitably spent among the bees in productive labor. And yet Mr. Alexander contemplates increasing his 750 colonies to 1000, because he believes that the extra number will still be able to keep up the general average. The ordinary bee-keeper will be nonplused to know how it is that so many colonies are worked to advantage all in one spot. A glance at the large engravings in this issue will partly explain the secret. The surrounding country is very hilly, and from the bee-yard one can look in a number of directions and actually see immense fields of white (buckwheat), which in the distance look like mere specks or white patches on the landscape. When it is understood that these 750 colonies have a range of 5000 acres of buckwheat, and probably as many more of goldenrod, one can begin to comprehend something of the possibilities of this location. Next to basswood buckwheat is the heaviest yielder of nectar of any plant in the world at least in this part of York State.

Some of the buckwheat-fields, if you will look at the top view, are probably four or five miles distant. We ordinarily estimate that bees do not generally go beyond a mile or a mile and a half on the average; but the conditions afforded by this hill country are somewhat peculiar. I suspect the bees have a telescopic vision—that they can actually see these white patches as far as or further than we can; that they learn that these patches contain honey; and as soon as they exhaust the nectar from near-by fields they will go to the further ones, with the result that they are kept busy all day.

In most localities buckwheat yields nectar only about two hours in the morning. During the night it is secreted, and the bees are kept busy another two hours; but here the multiplicity of the fields makes it impossible for the bees to gather all the nectar. Then the problem simmers itself down to this: That *if* one can induce the bees to fly five miles, and bring back heavy loads of nectar, it is cheaper to produce a crop of honey thus, by having all the bees in one location, than to have them scattered in several yards, because the bees will travel cheaper than their owner.

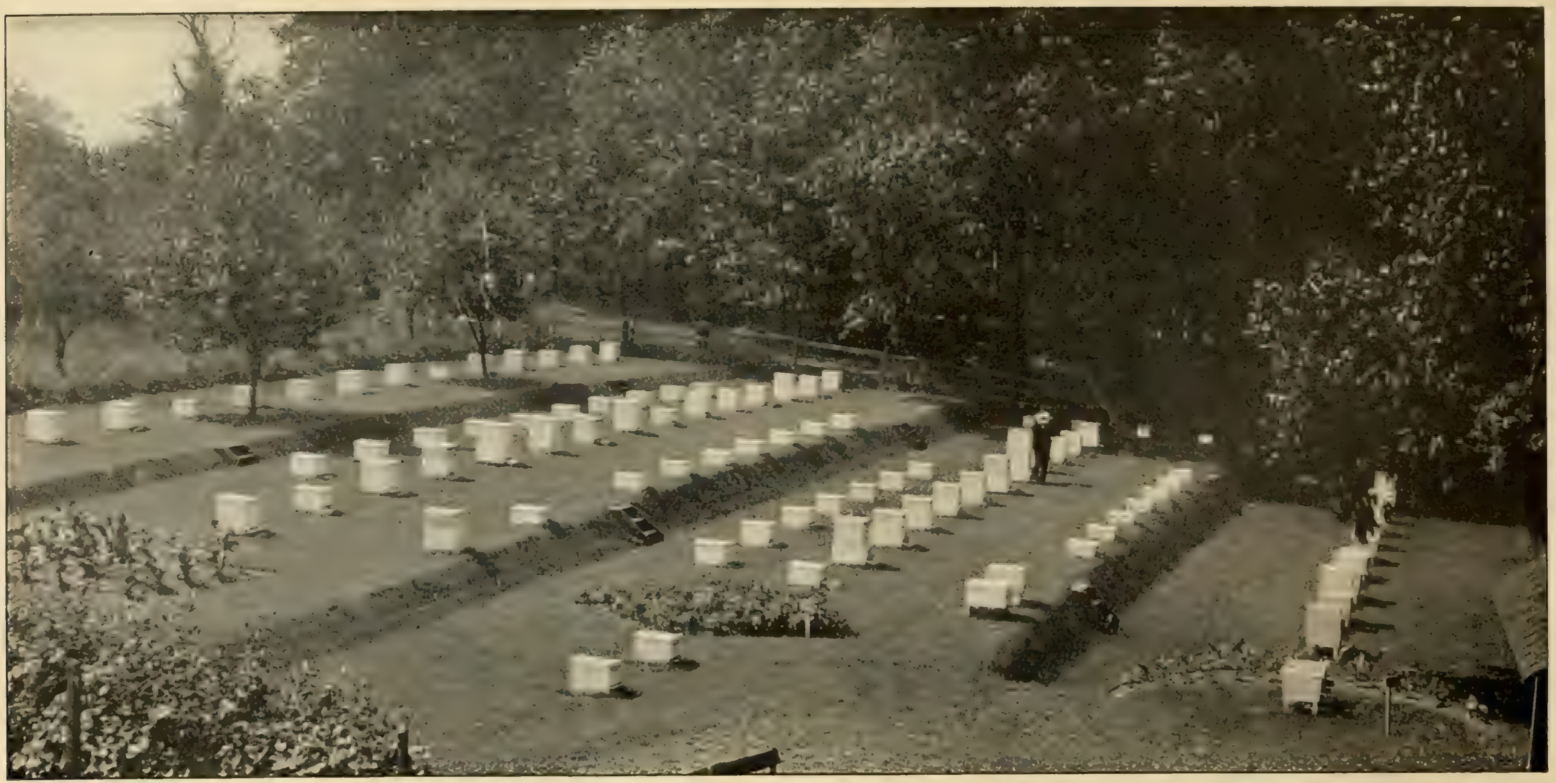
Now, the question naturally arises, "Do the bees actually go five miles?" I think Mr. Alexander told me that he had visited buckwheat patches that distance from home, and actually lined bees going from those patches in a direct line toward his mammoth yard, proving conclusively that his bees would actually go five miles, and did do it. By a scheme of outyards having 100 colonies in a spot the bees probably would not go over two miles, for the simple reason that they could not gather all the nectar in a radius of that length; but, on the other hand, when we increase the number of colonies we compel the bees to go further, and further they go.

The question might arise, "What is to prevent some one else from locating a yard of 500 colonies three miles from Mr. Alexander's?" Nothing, so far as I know; but I will say this: Anybody who would do this would have to be a good deal smarter than the average bee-keeper if he beats Mr. Alexander in the game of getting nectar; and besides he *knows* this locality as an interloper would not. Then I am convinced that, all through these York State hills, there is a sort of moral code that one bee-keeper is not to overlap on another's territory.

The top view, unfortunately, does not show the number of white patches that one will actually see while he is on the spot. As a matter of fact, no photo can do justice to the landscape.

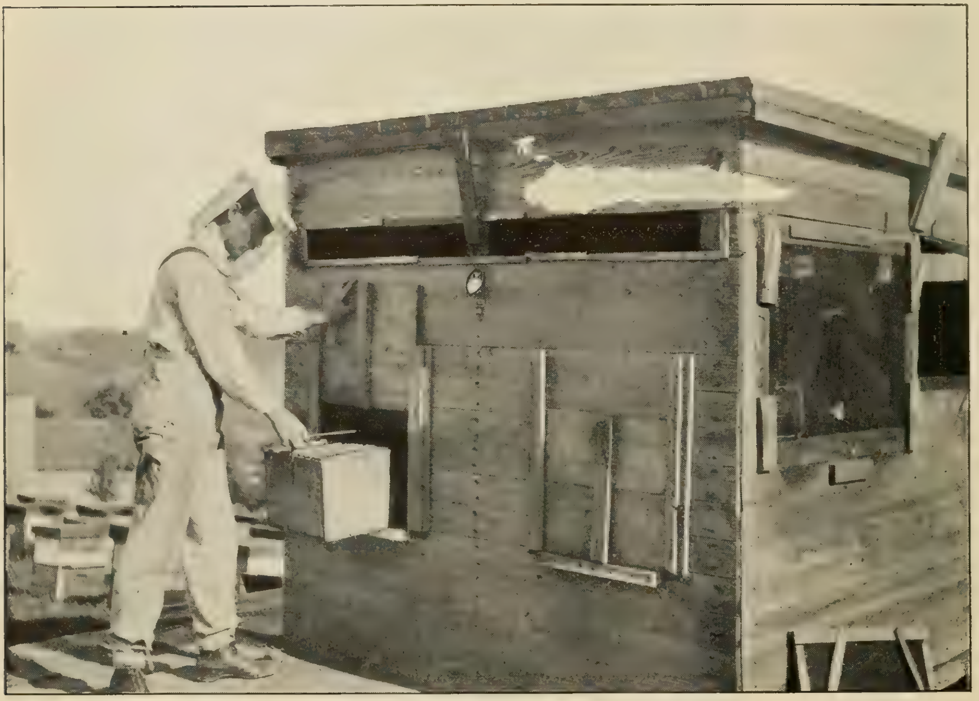
The lower picture shows a close view of one of the fields of buckwheat. One can get some idea of its size by the height of the trees in the distance.

The middle view shows the entire Alexander apiary. All three of these views were taken with a Panoram camera that takes in a scope of 142 degrees. If one has the time and patience he will be able to count 750 colonies; and with some few exceptions

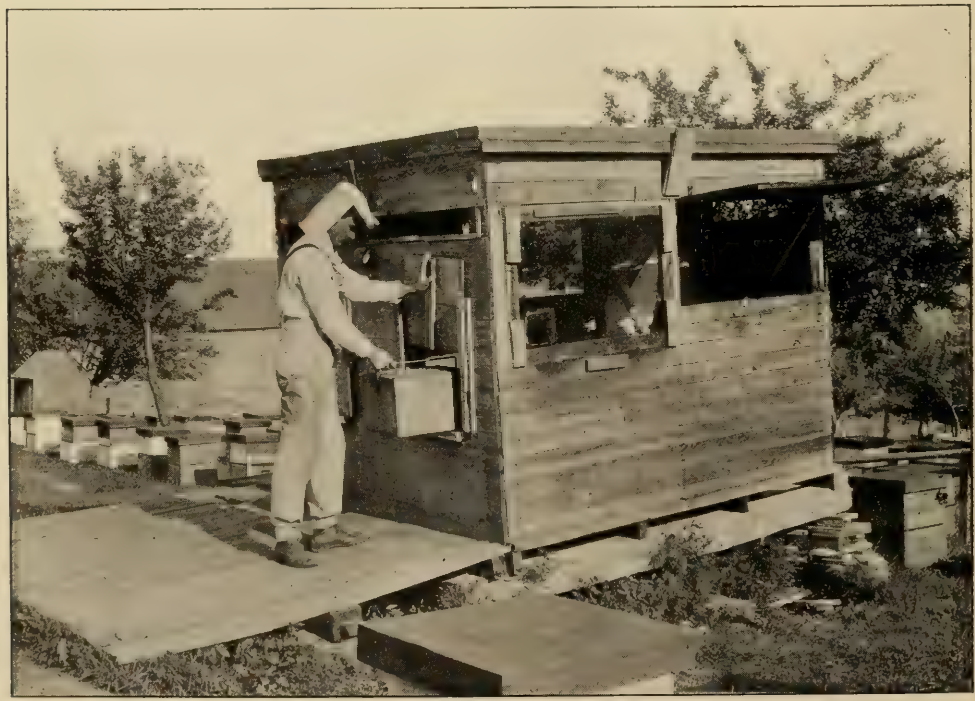


THE A. I. ROOT CO.'S EXHIBITION APIARY AT JENKINTOWN, PA., NEAR PHILADELPHIA.

[When the editor was visiting Mr. W. A. Selser he took a number of photos, and among them was one of the Root Co.'s bee-yard in the rear of Mr. Selser's residence, which he is operating for us. In beauty of surrounding, lay of land, and artistic arrangement of hives, it surpasses any thing we have here at Medina or elsewhere. It contains specimens of all the different races of bees as well as variety of hives. It is run for bees and queens as well as for honey. It was at this yard that the Philadelphia Bee-keepers' Association met last September, at which 400 were present. This was probably as large a convention of bee-keepers as was ever held in the United States. In between sessions, and even during sessions, practical demonstrations were made for the benefit of beginners. Further particulars regarding this will appear in the convention report to be given in another issue.—Ed.]



ALEXANDER'S EXTRACTING-HOUSE; TAKING THE EMPTY COMBS OUT.



ALEXANDER'S EXTRACTING-HOUSE; PUTTING THE COMBS IN.

they were all boomers; for, be it said to Mr. Alexander's credit, he knows how to get his colonies in prime condition for the honey crop when it comes. He does it by scientific feeding at the right time. Right here is one very important secret of Mr. Alexander's success, and why he has been able to do things on such a magnificent scale.

I would call attention to the long tin pipe (for carrying the honey) leading from the little extracting-house in the center of the yard; to another building containing immense evaporating-tanks.

It is with considerable pride that GLEANINGS is able to bring prominently before the world this immense bee-yard; and proud, also, that we are permitted to lay before our large circle of readers some of the secrets of Mr. Alexander's success.

The series of Alexander articles that we shall be publishing from time to time will be among the most valuable that it has ever been our privilege to publish.—ED.]

THE PRODUCTION OF EXTRACTED HONEY.

Cutting off the Corners in order to Save Time; Honey-tanks.

BY E. W. ALEXANDER.

In this article I hope to mention at least a few of the essential things that should be taken into consideration in the production of honey. One very important thing is the grade of the land where your hives stand. A gradual slope to the southeast, with a descent of about a foot and a half to every ten is the most desirable. This gives you a fine chance to have your honey run from the extractor through a pipe into your storage-tanks; and when the most of your colonies are above the extracting-building it is much easier to bring in the heavy combs than it would be if the ground were level. This, when handling many tons of honey in a season, is of much importance. Every move our honey makes from the hive where it is gathered to our railroad station is all down hill. There is not a place where it has to be raised one foot.

You will notice in one of the accompanying photos one of our men in the act of shoving into the extracting-building a carrier of heavy combs to be extracted. As he comes to the building with this carrier in his right hand he raises a drop sliding-door with his left. That is just large enough to nicely admit the carrier, he gives it a shove, and it slides along a bench to the man at the extractor, then he drops the sliding-door, and takes one step to the left, raises another door, and pulls out a carrier of empty combs; this only requires five seconds to put the heavy combs of one carrier into the building and take out the extracted combs of another. While they are in the building the man at the extractor uncaps those that require it and puts them through a four-frame Cowan extractor; and now comes the part where we have a great advantage over many. We give this honey no attention whatever. The gate of the extractor is wide open all the time; and as fast as the honey leaves the combs it runs through a pipe which has one end under the extractor-gate, and the other end over the storage-tank we wish to fill; and as these tanks hold about 4,500 lbs apiece we don't have to look at them very often to see that they are not running over. These tanks are in pairs, two of them in each of the small buildings you see in the photo. When one tank is full we simply add on a short piece of pipe which will convey the honey into the next tank. They have a large gate at the bottom of one end, and are resting on large blocks, high enough from the floor so we can set our scales with a barrel on under the gate, then draw off the honey directly into the barrel, setting the scales at whatever weight we wish it to hold; then when we have that weight we close the gate of the tank and have not had to lift any honey nor lose a drop in filling.

Then when you want to ship your honey, drive your wagon along the lower side of your building, lay down a plank and roll out the barrels on a level with your wagon.

[When I visited Mr. Alexander during the height of his buckwheat flow I took a number of photos showing the men actually at work, and also photos of appliances used. The two half-tones showing the little extracting-building, and the method of putting inside the filled combs and removing the empty ones, are a part of this series. Mr. Alexander, with the aid of these pictures, will describe his methods more in detail in future issues.

One thing that struck me particularly was the perfect system that our correspondent has elaborated for saving labor in securing his immense crop. The whole outfit, including the building, but exclusive of hives, bees, and the honey-tanks, would not cost $50, and yet I could scarcely imagine any thing more suitable than this little extracting-house, just large enough to hold one man, a four-frame reversible extractor, and two or three comb-carriers. One man inside does the extracting while two others take off the honey. While one of the two outside men is taking a carrier of combs to the building, the other is putting in a set of empty combs from which the filled ones were taken, closing up the hive and opening up another one. By this time the other man has returned with a carrier of empty combs. Both of them shake and brush the filled ones and put them in the carrier. When full, one man, as before explained, takes them to the extracting-house. So on the operation is repeated with the whole 750 colonies. To relieve the monotony, all three of the men change off. The man in the extracting-house will come out while one of the outside men will go inside.

These little comb-carriers are very simple and inexpensive; in fact, the whole lay-out is so extremely cheap and simple, and yet so effective, that the extracted-honey producers of the country will do well to follow this plan unless they have something better.

In our next issue Mr. Alexander will describe how the honey is conveyed from the extractor to the receiving-tank, some distance away, and how he strains all his honey and how he further evaporates it.—ED.]

PACKING COMB HONEY IN SHIPPING-CASES.

The Importance of Providing Some Material to Absorb the Shock; the Use of Corrugated Paper in Place of No-drip Sticks.

BY J. E. CRANE.

During the past thirty or forty years great strides have been made in all departments of bee-keeping, and cases for shipping honey to market in have been improving with other things. I remember very well visiting a bee-keeper in the north part of Vermont, in the fall of 1868. In the evening he said he had honey to pack. As I was hoping to have honey to ship later, I watched the process with much interest. He brought out into his kitchen a lot of odd-sized boxes and a flour-barrel, and proceeded to fit them into it. I expressed my surprise that he should use a barrel for comb honey; but he told me it was the safest way in the world to ship honey, or at least there was the least danger of its being broken if shipped in this way.

The next season my brother and I produced some 3000 lbs., and sold to a local dealer who proceeded to pack in drygoods-boxes. A little later I learned, by visiting New York, that honey was shipped to that market in cases made for that purpose, holding from 50 to 75 lbs., many of them holding two tiers of boxes; but commission men told me that the single-tier cases were preferred. Later the size was cut down to hold 20 or 25 lbs., which seems to be the most satisfactory size and style to-day. A tray of paper in the bottom of these cases, with sticks running across the bottom for the section to rest on, brings shipping-cases down to date. These have, I believe, proved (with careful handling) very satisfactory for shipping to near-by places or long distances when there is no change of cars if packed securely in a car.

Where much change, a danger of breakage occurs, if these small cases are packed in a larger one weighing one or two hundred pounds, with straw, handles, etc., they are said to travel more safely. The only fault with the present shipping-case is the danger of breakage of combs. Of course, we can pack a lot in a through car to the commission man or dealer in our larger cities, and it will almost always go through safely; but the large dealer can not ship in the same way, but must parcel it out in small lots, and re-ship, consigning it to the tender mercies of the expressmen or truckmen of our cities, so that often it reaches the buyer more or less broken. Could a case be invented that would carry honey safely it would, I believe, very largely increase the consumption of this delicious product, and relieve our overstocked markets. Many grocers now refuse to buy, or buy but lightly, well knowing that the danger of loss by breakage is quite as great as any profit likely to be had by dealing in so risky an article as comb honey. One grocer recently said he had rather pay two cents a pound more to a local dealer, and be sure of having his combs all unbroken, than to buy for two cents less and run the risk of breakage.

Some dealers seem to get used to it, and expect more or less breakage, and take it patiently, but with most of them it is quite otherwise.

Honey shipped during warm weather is likely to go more safely than when it is colder. At a temperature of from 80 to 85° wax is at its greatest strength. If you raise the temperature it becomes soft and weak. If you lower the temperature it becomes brittle and weak.

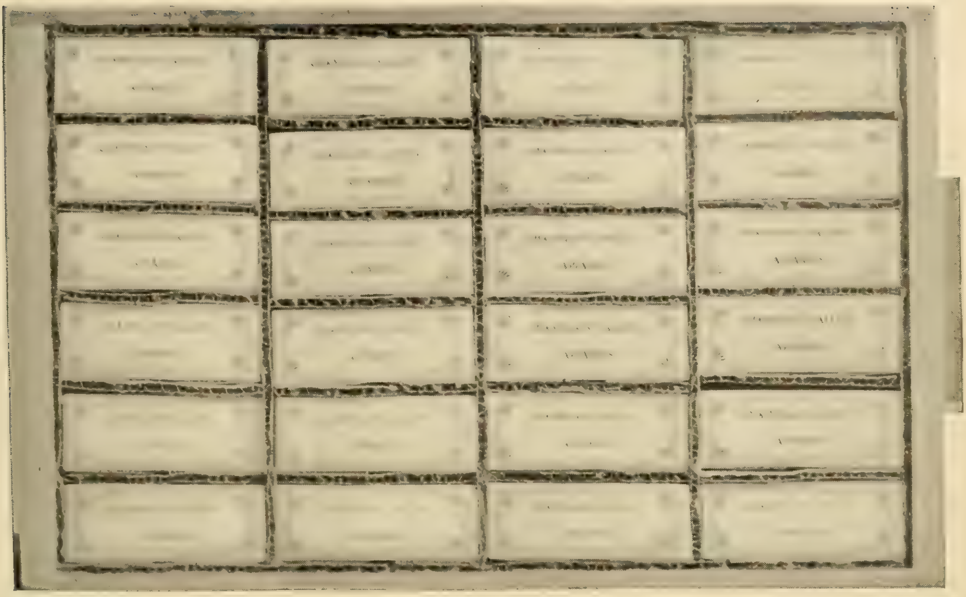
This whole subject has been brought to my attention on account of trying to market our honey direct to grocers, and shipping to them direct in small lots, and I find it of more importance than I had thought. In fact, packages play a most important part in commerce. As a nation we are trying to increase our foreign trade, yet our consuls at foreign ports or cities complain of defective packages, or those not adapted to the trade sought.

The invention of a safe, light, and cheap package for shipping eggs to market has doubtless added immensely to the value of this domestic product.

We may learn something from the fruit-growers. The success of growing small fruits depends upon the use of small baskets in larger crates. J. H. Hale, of Connecticut, is said to be the largest peach-grower in the world, yet I believe his success is the result of new and improved packages and methods of shipping, quite as much as in the growing of the fruit. The skill of fruit-growers on the Pacific coast in packing their fruit is well known, and has much to do with their success.

Comb honey is one of the heaviest and at the same time one of the most fragile of rural products, and yet so delicious and healthful that, could it be safely delivered at every grocery in the country, I believe its consumption would very rapidly increase until all produced would be taken at good prices.

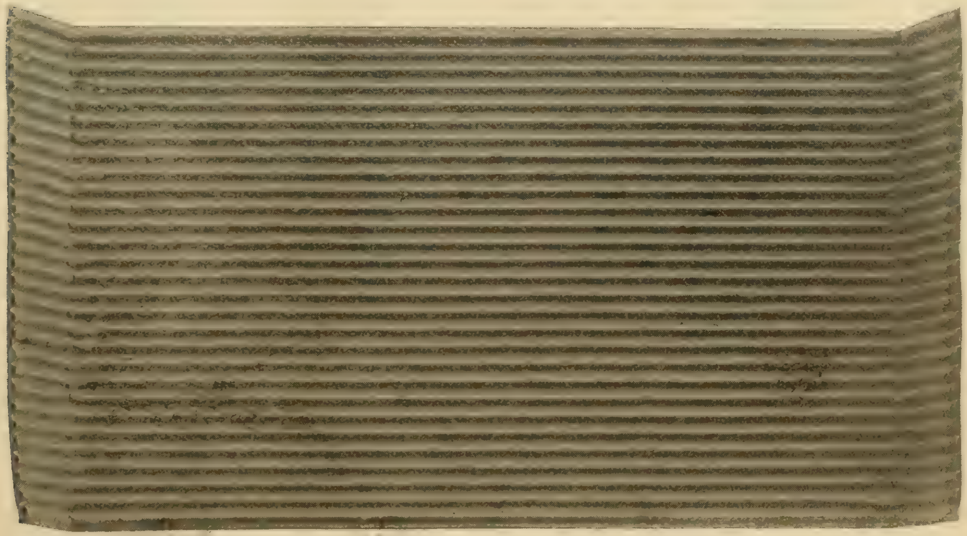
My son, Philip E. Crane, was on the road several weeks last year, and again this season, selling honey, and he quickly saw the



EXTRA FANCY COMB HONEY, EVERY SECTION OF WHICH IS ENTIRELY SURROUNDRD WITH CORRUGATED PAPER.

value (perhaps I might say the necessity) of lessening the danger of breakage; and when we began packing this year we began to lay corrugated paper in the bottom of the cases before filling with honey. I soon noticed that, if we used single-faced boards lengthwise of the case, bending the ends of the board up the ends of the cases, we had, in addition to a safer case, a very good protection from any honey dripping from the combs above it. Now, if we place under this some light elastic material we have a pretty safe case. Planer shavings, excelsior, or other material can be used. Unlined corrugated paper, if cut so as to have the corrugations first lengthwise and then crosswise, is very helpful if two or three layers are used. If great care is required, fillers can be used such as are used in shipping bottles, thus making a box or cell of elastic paper for each section. Corrugated paper is not expensive, and the extra expense is not large.

We are accustomed to think that our pack-



CORRUGATED PAPER FOR INSERTION IN THE BOTTOM OF SHIPPING-CASES, IN PLACE OF DRIP-STICKS.

ing-cases are rather expensive; but, are they? Apple-producers do not hesitate to pay 30 or 35 cents for barrels when they are getting less than two dollars per barrel for their fruit, thus giving one-sixth of all they get for the package, while I can get up a case for my honey, with very good protection against breakage, for less than one-twentieth of what my honey sells for.

By the way, I notice of late that careful apple-packers are using cushions of some light material for the heads of their barrels, to prevent bruising the fruit when filling and heading the barrels. Does it pay them? I do not need to answer the question. And if it will pay them, how much better will it pay bee-keepers to pack their honey so that there shall be the least danger of breakage?

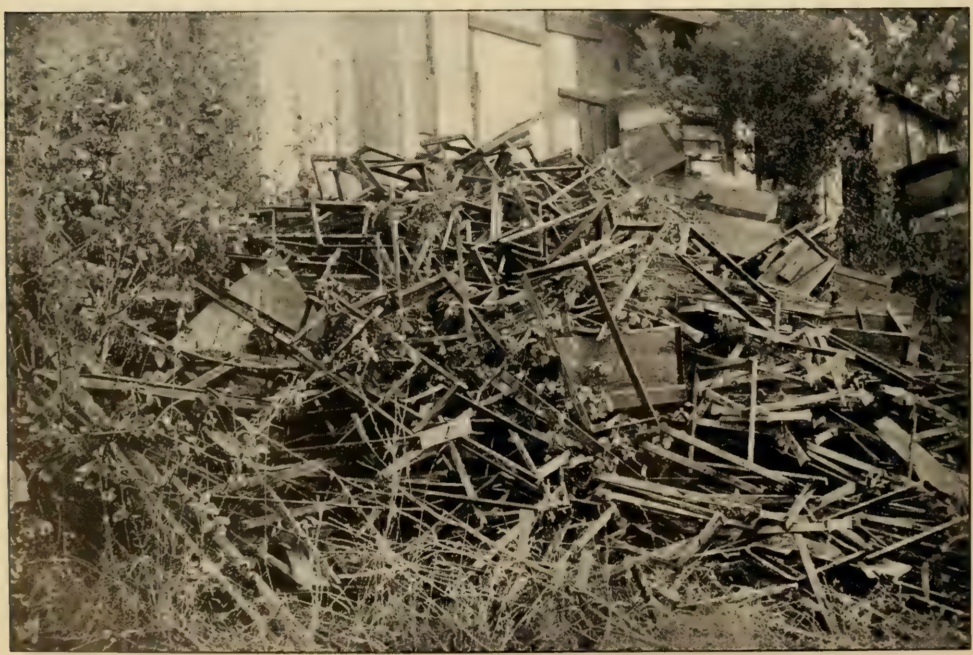
I may say, in closing, that the use of corrugated board in packing has been very satisfactory to us, and appears to be especially pleasing to those who receive honey so packed.

Middlebury, Vt., October 16.

[It is a fact that bee-keepers have hardly kept pace with the fruit-men in getting up suitable packages and shipping-cases for their comb honey. It may be that this reflects more seriously on the bee-supply manufacturer than on the customer. If so, the Root Co. will try to take its own medicine.

As soon as Messrs. Crane and Green suggested the use of corrugated paper, such as is put around patent-medicine bottles and other fragile articles, I felt at once that here was something that was just the thing for comb honey shipping-cases in lieu of the no-drip sticks. Why did not somebody think of it before? Why have we been so stupid as to let all the rest of the world run ahead of us? Why have we been letting our comb honey break down when we might have saved quite a respectable percentage of it?

We have been testing the corrugated paper by taking cases of comb honey right out of stock. Half of the case to be tested contained the no-drip cleats, and the other half the corrugated paper. How did we test it? We lifted the case up about two feet from the floor and let it drop ker-slap; and we kept on dropping it until some of the combs were broken out of the sections. Then we would open up the case and see which side fared the worse. Of course, the comb honey on the no-drip side broke out first. The continual dropping, however, smashed all the combs, leaving but little choice between either side. But it was very evident that, in ordinary shipping, the corrugated paper with its cushion surface would save many combs that would be utterly lost on the unyielding no-drip cleats. Even though the cleats lift the honey above the drip, the whole case full is damaged to some extent. The corrugated paper also lifts the combs out of the honey, but not so well as the cleats. But if the paper will save the breaking of the combs it is easy to see there will be less of drip or none at all.



A FRAME BONE YARD. PHOTO BY W. A. PRYAL.

We observe another thing—that, when the combs are badly broken, the corrugated paper becoming soaked with honey loses all of its cushioning property, because the corrugations will flatten out; but this is an extreme case.

The Root Co., at least, proposes to furnish this corrugated paper to its customers for 1906 as an option at one cent extra per case. Probably we may in time buy it in large enough quantities so we may be able to send out cases equipped with this paper at the same price as those containing no-drip cleats.—Ed.]

A FRAME BONE-YARD.

Experience a Dear School.

BY W. A. PRYAL.

Did you ever see a frame "bone-yard"? You never heard of such a thing? Well, I am not surprised, for it never occurred to me that such a thing existed until I discovered one a few weeks ago. I was elated with my find, for it appealed to me as something unique in the bee-line.

The accompanying illustration shows the result of my discovery. Did you ever see any thing like it from a bee-keeper's point of view? Just study the frames individually! They remind one of human faces, inasmuch as no two of them seem to be alike. Yet there are hundreds of them that are alike if one were to examine them closely. Some old discarded hives, covers, and bottom-boards are to be seen in the mix-up, and there are a lot of brambles, poison oak, and other things too.

These frames were discarded, I should judge, because the owner has adopted a style of Hoffman frame more to his liking. I noticed that he made his own hives and frames, he having a Barnes-saw outfit for that purpose. He uses redwood for the entire hive equipment. (Here I may remark that my experience is against redwood for frames, as it is too brittle. I prefer Oregon pine to any thing else I have tried).

I was told that the proprietor of this apiary is a bachelor. If he were otherwise, it is more than probable that his wife would have seen that all the old frames were converted into *ne plus ultra* kindling-wood. A frame "bone-yard" is all right as an occasional curiosity, but it is a menace to the apiary.

I have not written the foregoing as a reflection on the owner of the yard, but have simply taken the opportunity the pile of old and exposed frames presented to point out the danger they are to the bee-keeper.

Oakland, Cal., Oct. 25, 1905.

[I have seen "frame bone-yards" in some localities in the West; but they were usually the result of some bee-keeper buying up all the bees in the locality from a dozen or so different bee-keepers, each using a different hive and frame, making it necessary for the new owner to get them all down to one size. The natural result was a lot of old discarded hives and frames of all sizes. The one here shown, however, is one of the biggest piles I have even seen. But there are times when a frame bone-yard of this kind reminds us of Josh Billings' question, "What's the use of knowing so much when so much you know ain't so?" That is to say, every once in a while we run across a bee-keeper who gets an idea into his head that the veterans do not know how to make a hive or a frame; and then he proceeds at once to discard all his old hives for one of his own get up. After investing more money than he will ever earn he becomes disgusted, and declares "bees don't pay." If you go around to his bee-yard you will find a "frame bone-yard" a good deal after the style of the one here shown. That kind of bee-keeping is a travesty on the profession.

While it may look like poor policy to exhibit a picture of this kind in an up-to-date bee journal, yet Gleanings believes it ought to show up the foibles and follies as well as the Alexander type of bee-keeping.—Ed.]

OUR HOMES,

BY A. I. ROOT.

THE ANTI-SALOON LEAGUE OF AMERICA.

And now I say unto you, Refrain from these men, and let them alone, for if this counsel or this work be of men, it will come to naught; but if it be of God, ye can not overthrow it, lest haply ye be found even to fight against God.—Acts 5: 38, 9.

I have just returned from Indianapolis, where we have had a session of the above league, commencing on Tuesday, Nov. 21, and closing on Friday evening following. Our text, it seems to me, seems to be specially applicable to this organization, and it it now called the Anti-Saloon League of America, for it now has branches in almost every State in the Union, if not all of them, and these States were all pretty fully represented by delegates. I should estimate that three-fourths of the delegates and field workers were ministers of the gospel, and almost every denomination in the United States was represented. Quite a few of these eminent divines had also studied law; and among them were some of the finest and brightest politicians of the age. Governor Hanly, of Indiana, gave the opening address of welcome, but before I begin to tell you about it I want to say something about the opening prayer.

I fear there are a good many people who are not in the habit of listening to the opening prayer on Sunday morning in the same way that they listen to the sermon that follows. To tell the truth, I know of some people who go to sleep during the opening prayer. Please do not ask me how I know; and I wish to add it was not the fault of the prayer nor of the pastor who made it. Well, this opening prayer at the beginning of our covention was made by Bishop Mathews, of the United Brethren Church. When he started out he hesitated, and seemed to find so much difficulty in saying just what he wanted to say that I rather pitied him. But it was not long before I changed my mind and began to pity my poor self. I do not know but I was the first person in that great meeting to say amen to something that struck home to me in a remarkable way in that prayer. The amen came almost of itself; and I was a little frightened when I found I had said it so loud and I began to think it was, perhaps, not the fashion among that great body of educated and cultured young ministers to say amen. Very soon, however, I was at ease on that point. Other amens like my own followed fast and quickly, and one good pastor warmed up and put such wonderful thoughts and suggestions in regard to the needs of our nation, together with thanksgiving for the victories that have just been granted us in answer to prayer that the amens came from all over that vast audience like veritable hail. They drowned the prayer so that the dear brother had to wait till they had ceased before he could go on; and for quite a time it was brief, short sentences, so wonderfully to the point, and suggesting things we had never thought of before, but which, notwithstanding, commended themselves so to the hearts of the great listening audience that it seemed as if it was not the leader who was speaking, but the people who were listening. He voiced the thoughts, the longings, and the hungering of all those grand, noble hearts united in one petition. I thought of the words, "Blessed are they which do hunger and thirst after righteousness, for they shall be filled;" and it seemed as if the answer was coming while we prayed. Yes, it is true we *all* prayed. Amid the praying and the shouting (for it was almost that before the prayer was ended), a sweet, motherly voice near by uttered the words, "Yes, Lord"—just those two words, but they almost seemed to lift me off my feet. My mind went back to that revival of toward thirty years ago in the Methodist church here in Medina, when I first spoke in public for Christ Jesus, and where *my* voice was first heard in public prayer. They were union meetings. We held them first in one church and then in another. When we got around to the Methodist church it was always a little more noisy there than at the other places of worship; and at one of those noisy meetings a dear sister, who has long since gone to her heavenly home, used the words, "Yes, Lord," when some brother or sister expressed just the thought that she felt needed more emphasis. Those words and that sweet, motherly voice still ring in my ears. It expressed a close and intimate acquaintance with the Lord Jesus Christ, and expressed, too, a faith, a happy faith, that God *would* hear and would send the blessing. That opening prayer, it seemed to me, gave us all an uplift. It suggested to me the chorus of that beautiful hymn:

Lord, lift me up and let me stand
By faith on heaven's table-land.

Governor Hanly, of Indiana, is a comparatively small man. He looks boyish and acts boyish, especially when he first starts to speak; but when he gets a-going you forget all about his size and his apparent diffidence when he first stands up before you. May the Lord be praised for such a man as Governor Hanly! When our beloved President Roosevelt absolutely declines being President any longer, I should not mind voting for Governor Hanly. He said the Anti-Saloon League is the great ally of the church, and that he was glad to extend a Hoosier welcome to all the dear brothers and sisters who had come to Indianapolis from far and near—not because of what we have done, but for what we *stand* for. He commended the League for the *quality* of its work, for its practicability. "You are not only right," he said, "but you know how to bring men to your support, how to appeal to the thoughts of men, then stir them into action. You have succeeded because you have been wise enough to keep out of politics." There were a good many smiles right here, and the people in the audience looked at one another to see just what he meant. After he had paused a little he smiled and then added: "Don't misunderstand me. Some people complain because you have gone into politics. When I say politics I mean partisan politics. You have made your appeal alike to Democrats and to Republicans who are in sympathy with the principles for which you stand.

I hardly need tell you what Governor Hanly has done toward closing the saloons nights and Sundays, for it has been in the papers pretty much all over the United States. While he was speaking the daily papers were announcing in big headlines that seventy saloon men had been arrested for keeping open the Sunday before; and I was told that something over a hundred in Indianapolis had been fined and imprisoned for breaking the law. There was a big stir about it, and they were threatening the good Governor all manner of evil things for having enforced the Sunday-closing law all over Indiana. There were many jokes to the effect that Hanly had not only "shut down the lid," but had "screwed it fast." The mayors, marshals, and policemen of the different towns and cities in Indiana who seemed inclined to connive with saloonkeepers to evade law are being straightened out at a rate that makes their heads swim. But the churches, the temperate, and the temperance people of Indiana are rejoicing and declaring just as vehemently that Governor Hanly shall be supported *and kept in office.*

Dr. Howard H. Russell, the old veteran of the Anti-Saloon League, spoke of the victory in Ohio, and said, "It was the men with clay on their boots, who rallied from the country districts, who gave us our victory."

Wednesday morning they decided to have a roll-call of the States; but there were so many of them that it was deemed best to confine each delegate to a report of ten minutes; and even then we did not get to all of them.

Superintendent Baker, in a magnificent speech and summing-up, told us that the League during the year 1905 had received $339,479, an increase over 1904 of over $72,000. There are now 26 Anti-Saloon League papers published, with a combined circulation of 208,000 copies. Brother Baker asked us all to remember that the League is confining its efforts strictly to fighting the saloon. "This one thing we do, and we are going to stick to it until the American saloon is a thing of the past."

The delegates from the different States told us many funny things connected with their fights and their victories. A good brother who reported from Texas told us that the greater portion of that large State is now dry territory. In one county there were sixty or seventy saloons. After a big fight the Anti-Saloon League triumphed, and it was decided that, by the time the law had been printed the third time in a weekly county paper, every saloon should close its doors. The law had been published for two weeks; but on the third week, the day before the paper was going to press, a tramp printer wanted a job there. As they were short of help, he was set at work. As he had no home and no money he begged to be allowed to sleep in the printing office over night; but the boss gave him half a dollar to get a bed. He got up the next morning, however, before anybody else got around, slipped into the office, and, after the paper was all printed, ready for distribution, the sharp editor, who was a temperance man, discovered that a single word had been removed from the ordinance, and the line spaced out so it did not show. But the omission of this word permitted the saloonkeepers to declare they were not legally ruled out, and they had already commenced celebrating. The editor, however had the word put back, destroyed the whole edition of papers that had just been run off, and printed a new edition with the ordinance correct. The temperance people then rallied and paid the publisher for the loss of paper and presswork; and then they went for the tramp printer, but he could not be found. The saloonkeepers stopped their celebrating, and proceeded to obey the law; but the outraged public felt so indignant at this trick, indicating so clearly that saloonists are *anarchists,* and do not *propose* to obey the law, that the wets got a worse dose than they would have had otherwise. In that Texas county, like the State of Indiana, the "lid" is not only shut down, but "screwed fast."

Rev. E. C. Dinwiddie told us about the fights in Washington to circumvent the army officers, or those who are pleased to style themselves army officers, in trying to have the canteen restored. He also told us of the vigorous efforts to open up beer-selling in the Indian Territory, but that righteousness had again triumphed, and there was but little probability that they could evade or get around the law for the next 21 years.

Not only are all the Protestant churches uniting to banish liquor-selling, but Rev. James McCleary, of Minneapolis, gave us a grand temperance talk on total abstinence among Roman Catholics. During the opening of his speech, with a very pleasant smile he said he was happy to be permitted to stand in a Baptist pulpit and speak to those who love temperance. He gathered from the smiles of his audience, however, that he had made a mistake somewhere. When told that it was a Methodist church he said he was sure it did not make any difference so far as he was concerned, and he was quite certain, too, that it made no difference with the audience.

Rev. Louis Albert Banks, D. D., gave us a magnificent talk on the relation of Christianity to politics.

Rev. Charles Scanlon, of Pittsburg, made, I think, the most brilliant temperance oration I ever heard. I asked one of the officers if there was a stenographer present to take down that sermon, but he replied: "Why, Bro. Root, there is no stenographer living who could take down that part of it where he spoke with such enthusiasm, and where he crammed so many brilliant thoughts into sentences so rapidly spoken, and I presume he himself could not reproduce it." The encouraging cheers and clapping of hands, and the amens, had probably given him an inspiration that enabled him to utter thoughts and soar to flights of oratory that could not be transcribed to paper.

I remember we had a very encouraging report from Florida; but I did not gather from it the statement made under the head of the temperance lesson in the *Sunday School Times* for November 6. The statement is as follows: *"The State of Florida manages to worry along with only* 25 *saloons."*

Mr. Folk, of Tennessee, brother of Governor Folk, of Missouri, gave us a most interesting account of the work in his State. Tennessee is almost a prohibition State; and it is a little funny to find out how it was brought about. They succeeded in having a law passed, forbidding saloons within four miles of any schoolhouse. Bro. Folk is State Superintendent of the Anti-Saloon League, and he is almost freeing the state by planting schoolhouses wherever saloons are found. They have been giving way before the march of education; but finally in one place they entrenched themselves on an island in a river. After they got to doing a thriving business and making it quite a resort for the intemperate, by Mr Folk's direction a schoolhouse was planted on the island. Now, I did not learn exactly whether they sent pupils over to the island in order to make it a *bona-fide* schoolhouse, but they broke up the traffic, and still they are "marching on" along the same line. (Some might say right here that this wasn't *fair* to the saloonkeepers.) Just think of it, friends! what a glorious work for any State or any people, putting up *schoolhouses*, places for educating the young, where beer and whisky saloons have formerly held sway! May God bless Tennessee. In fact, God has blessed the State. Mr. Folk is a man of wonderful ability as a speaker. Besides his Anti-Saloon work, he is publisher of some Baptist paper, but I have forgotten the name of it.

HOW A WOMAN ALMOST SINGLE-HANDED MADE A TOWN DRY.

Mrs. Florence Richards, a W. C. T. U. lecturer from Leipsic, Putnam Co., Ohio, gave the closing address of this grand convention. Superintendent Baker, in introducing her, told us she would, by request, tell us how she got saloons out of Leipsic. Perhaps I might mention that it was in this same town of Leipsic, almost fifty years ago, that I took my first lessons in beer-drinking. I was learning the trade of clock and watch repairing; and as there was a beer saloon right across the way, which my *teacher* often visited, it is not strange that a boy of seventeen got drawn into it. Well, Leipsic is now a town of six or eight thousand inhabitants. A little over two years ago, just as Mrs. Richards was returning from a lecture tour, the pastor of her church informed her he had announced and made other arrangements for her to give them a temperance talk the next Sunday evening. She told him she was tired out, and had come home to rest, and that he would really have to excuse her and postpone the announcement. He replied, "Why, you told me some time ago, Mrs. Richards, that people kept asking about your *own* town, and saying they supposed, of course, that you had succeeded in banishing saloons from your native place, etc. Now, we will give you all the help we can if you will just get right at it. There is a big new saloon, built of brick, just opened up, and they are doing a smashing business, and no mistake."

After a little more entreaty she told him she would try to prepare herself and do what she could. The more she thought about it the more the Holy Spirit seemed to indicate that she should go right *into* the saloons and get facts for her address.

On Saturday night she started out, notebook and pencil in hand. Sure enough, in every one of the ten saloons she found men and boys—boys under age, whose names she could easily take down in her book, for she knew their mothers and all about them. Before she got to the big brick saloon it was noised abroad through the town what she was doing, and a crowd followed her. In fact, there were so many in that new gilt-edged establishment with its finely furnished trappings that she decided, instead of waiting until Sunday evening before she gave her lecture, she would give it *then* and *there*. The bartender courteously opened the door for her, then got behind the counter with alacrity, and said: "Well, madam, what will *you* have?"

Now, perhaps, I should add that Mrs. Richards is a large, fine-looking woman. She is big enough and stout enough to hold her own with almost any man. She has lots of poise and assurance, and I can readily imagine she could keep a smiling face, and go forward and do her duty, no matter where she might be put. She replied something like this:

"My good sir, I am not yet just ready to tell you *what* I will have, but I will make it known in due time. I see you are on hand in readiness to attend to *your* business. Now, I want to tell you that I, too, am on hand ready to attend to *my* business."

Then she turned to the young boys who were there under age, in direct defiance of the law, and commenced to take down their names in her book. She knew most of them. and she knew their mothers. She knew the men also, and knew their wives; and she knew pretty well about the homes where they lived. She warned the boys of the consequences of the drink habit; she told them they were breaking the laws; she reminded them of their mothers and their sisters, and how pained they would be to find them in such a place. At the close of her talk to the boys she asked all who were ready to sign the pledge and start out on a new life for something better, to raise their hands. Nineteen hands went up. Her prayers for the boys were answered. The Holy Spirit guided her in her desire to reach their young hearts. Then she turned to the men. Among them were some members of the town council and the mayor. They were smoking and drinking, or they had been doing so. She reminded them in kind but plain terms of what they were doing to protect the town and to see that the laws were enforced. She told the men one after the other how much the money was needed by their wives and children. She spoke to one man whom she knew was a carpenter. She reminded him of the poor condition in which his home was to shelter his wife and children from the inclemency of the weather; of the way in which building paper had been nailed over the cracks because the house was not finished, and yet he was there squandering his wages for the week in that gilt-edged den of iniquity. Finally, she wound up by reminding

Continued on page 1352.

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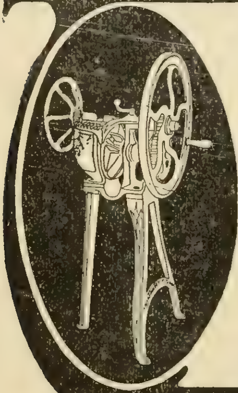

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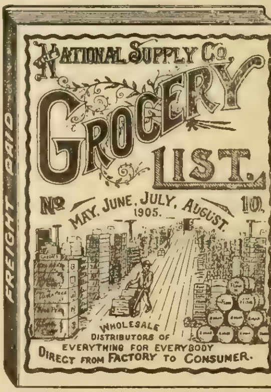
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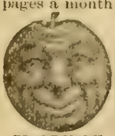

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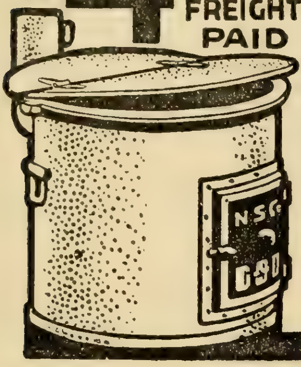

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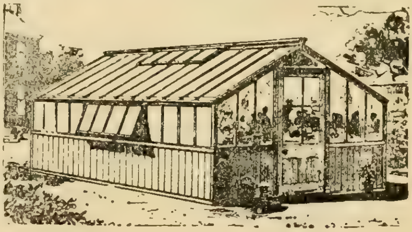

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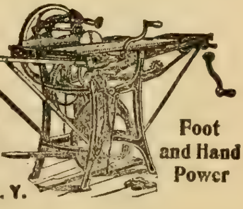

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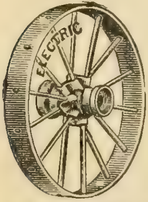

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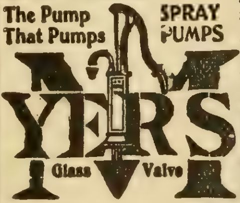

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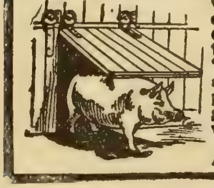

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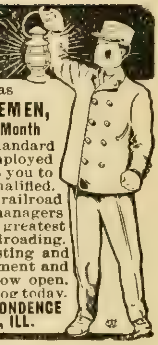

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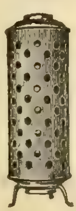

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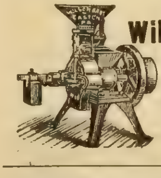

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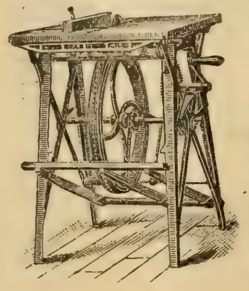

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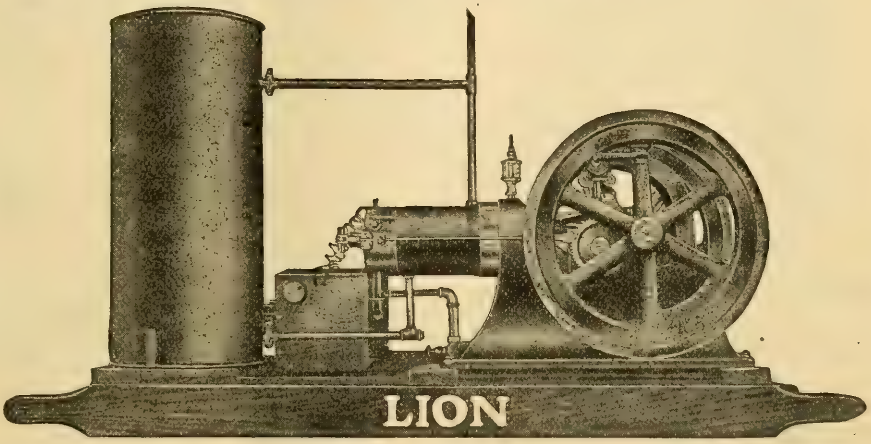

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Our ad. has been standing in Gleanings now for many years, and in twenty-five years we have learned a great deal that is helpful both to ourselves and to our customers. We have sent bees to all parts of our civilized world, and we have testimonials quite sufficient to fill Gleanings. We have long since abandoned the baby-nuclei plan of queen-rearing, and now raise our cells in full strong and rousing colonies, and mate queens in three-frame nuclei, of standard Langstroth-size frames; and this alone has increased our queen trade with wonderful rapidity among practical bee-keepers.

We have our mating-yards from five to twenty miles apart, and we get satisfactory mating, which is another strong point. We raise three-band Italians, Carniolans, Holy Lands, Cyprians, Albinos, and Goldens, and use good drones in mating-yards. We can not think of any thing else that would be likely to convince the readers of Gleanings that we send out good stock at the following low prices:

Untested queens, $1.00 each; $4.25 for six, or $8.00 per dozen. Tested queens, $1.50 each. Breeders, $2.00 to $5.00 each. We make an extra selection of any queens for 50 cts. extra. Safe arrival of all queens and bees guaranteed to U. S., Canadian, and Mexican points. We make a specialty of bees by pound, nuclei, and full colonies. Prices on application. We fill carload orders; in fact, we are queen and bee merchants and will fill your orders for what you want. Our experience in shipping bees in car lots, and by small lots by express, is how we land them safely. If you are not just exactly decided in what you want, do not hesitate in writing us, and we will lend you our assistance and help you what we can. Address us as usual.

THE JENNIE ATCHLEY COMPANY

Box 18, Beeville, Bee Co., Tex.

Any Month

in the whole year I can mail queens. Good queens, too, from the very best stocks. If you want one or a hundred I have plenty of them and can furnish promptly. . . . .

Laws Improved Golden
Laws Leather - colored
and Laws Holy Lands

Prices, all races: Single tested queen, $1.00; in lots of six, $5.00; in lots of dozen, $10.00. Liberal discount on quantity lots. Full colonies and nuclei furnished. Bee-supplies for sale at extremely low prices. Write for special circular. .˙

W. H. LAWS

BEEVILLE - - TEXAS

CARNIOLANS OUR SPECIALTY

We have bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering fifty select imported and two hundred best select tested Carniolan queens for early orders next spring. Imported queens, $5.00 each; select tested, home bred, $3.00 each.

Leather and Golden Italians

We have them as fine as can be found in any country, and we are wintering some select imported stock for early spring sales. Same price as Carniolans.

Specialties for 1906

Banater Bees from Hungary

Great claims are made for this new race of bees as honey-gatherers, non-swarmers, and gentleness.

Caucasian Bees from Russia

Claimed to be the gentlest bees in the world. We are wintering some imported queens of these two races of bees; and, after testing their qualities, will report in proper season.

Bees and Queens

Guaranteed to arrive in good condition at your post-office in United States or Canada. No foul brood or other bee-disease here. New descriptive price list out January 1, 1906.

A Few Testimonials

F. A. Lockhart & Co.:—Last Friday I was in the New York office of The A. I. Root Co., and saw a three-frame nucleus of Carniolan bees with queen, which they had just received from you. They were the finest Carniolans I ever saw, entirely free from any trace of yellow markings, and I at once bought them, though the Root people were not very anxious to sell them. I am writing you to-day to ask if you can ship me at once a three-frame nucleus of Carniolans with plenty of drone-brood. Send by express to me at Columbia University.—J. H. McGregor, Dept. of Zoology, Columbia University, New York, June 17, 1905.

F. A. Lockhart & Co.:—Enclosed you will find 75 cts. for one untested Carniolan queen. If this queen proves to be as good as the first Carniolan queen I bought of you I will feel more than satisfied, for that queen was worth $100 to me. I put her in a hive that was full of moths and worms, and only a handful of bees or so; and as soon as her bees took possession the moths and worms had to get, and the next year they did finely. I am always ready to speak a good word for your strain of Carniolans.—Walter Hemple, Bagley, Wis., July 25, 1905.

F. A. Lockhart & Co.:—Mr. T. C. Stanton won first premium at the New York State Fair with the Carniolans you sent him, and I will add that your strain of Carniolans has won all the first premiums at the New York State Fair for many years. Where I showed your strain of Carnolians I won, and where I showed some other strains of Carniolans I lost.—S. D. House, Camillus, N. Y., Sept. 22, 1905.

F. A. Lockhart & Co., Lake George, N. Y.

HELLO, HERE!

Attention!!

Read This.

Bee-keepers, why not order your queens direct from one of the leading queen-breeders of America? He sends queens to all parts of the world successfully. I sent a Golden queen to Mexico last year, and her colony stored 416 lbs. in 12 weeks. Just think of it! 416 sections in 12 weeks. I rear only two strains—the red-clover, or three-banded, and the Golden Italian. I shall raise 5000 queens in 1906 to fill orders with by return mail. A dozen mails leave San Antonio daily.

Prices

Untested queens up till June 15th, $1.00 each; Tested, $1.25 each. After June 15th: Untested, 75 cts. each or $8.00 per dozen; tested, $1.00 each, or $10.00 per dozen. Breeding queens, $3.00 each.

I offer you the best queens that money can buy. No order too large or none too small—can fill them all. Am booking orders now for spring delivery. Dealers in foreign countries will do well by writing me for prices. Keep this number for reference.

DANIEL WURTH

1111 N. Smith St., San Antonio, Tex.

QUEENS
A SPECIALTY

We remove queens and proceed to introduce at once. . Price list and our method of introducing ready for mailing by January 1, 1906. . Italian and Caucasian Bees.

D. J. BLOCHER
Pearl City, Illinois

QUIRIN

THE QUEEN-BREEDER

Will as usual be on hand with his Superior Improved Strain of Italian Bees and Queens for 1906. . . When you buy stock of Quirin you get the qualities which tend to make bee-keeping a success. The editor of this journal, in observing the handling of our bees, remarked that such stock would be in great demand. Business established in 1888.

A Few Unsolicited Testimonials

Our folks say that your queens are extra fine. The A. I. Root Co., Medina, Ohio.

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens. B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was from one I purchased last year that I received over 600 pounds of honey. J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly.
Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat any thing ever seen in this part of the country E. L. Messenger.
53 Townsend Ave., New Haven, Conn.

The nuclei you sent J. A. Adams did just splendid. Each colony stored at least 75 pounds of honey. F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years.
H. C. Shirley,
Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scuffletown, Ky., and that is why I am ordering this half dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealings and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that $50.00 will not buy.
Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin the-queen-breeder, Bellevue, Ohio.
S. A. Peck, Box 124, Northumberland, Pa.

Prices

Prices before July 1	1	6	12
Select queens	$1 00	$5 00	$9 00
Tested queens	1 50	8 00	15 00
Select tested queens	2 00	10 00	18 00
Breeders	4 00	.....	.....
Straight five-band breeders	6 00	.....	.....
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	.....

If a queen is wanted with nuclei or colonies, add the price of whatever grade stock is wanted. Can furnish bees on Danzenbaker or Langstroth frames. We guarantee pure mating and safe delivery. Queens not satisfactory may be returned any time inside of 60 days, and another will be sent gratis. Full instructions for introducing with each queen. We begin shipping queens in April; nuclei about May 10. We employ four to five hundred swarms in rearing queens; and knowing the difficulty experienced in getting queens promptly, it is our intention to keep 500 to 1000 queens on hand ready to mail.

Our Northern-bred Italians are hardy, and give you results. A dollar invested in a queen may mean five to fifteen dollars' worth more honey in the fall. Our stock has improved wonderfully within the past year or two, and would be pleased to have all bee-keepers give us an order for at least one queen, and be convinced. Free circulars. Send in your orders early as possible. Save this advertisement, as you will not hear from us again till April or May.

Address All Orders to

QUIRIN-THE-QUEEN-BREEDER

BELLEVUE, OHIO

WE ALLOW SPECIAL DISCOUNTS

ON ALL EARLY ORDERS.

IN DECEMBER,	7 PER CENT.
IN JANUARY,	6 PER CENT.
IN FEBRUARY,	4 PER CENT.
IN MARCH,	2 PER CENT.

Our 25 years' experience in the manufacture of ALL KINDS OF

Bee Supplies

enables us to furnish them at **BOTTOM PRICES** and of **SUPERIOR QUALITY.**

WE HAVE MORE SPECIAL MACHINERY,
MORE ACCURATE MACHINERY,
MORE VALUABLE MACHINERY,

than any other manufacturer of Bee Supplies in the world. If you have ever used our goods you KNOW their superiority. If you have never used them, one trial will convince you.

WE GUARANTEE ENTIRE SATISFACTION.

Our large illustrated catalog and price list and a copy of THE AMERICAN BEE-KEEPER free. Address

THE W. T. FALCONER MFG. CO.,
Station M, JAMESTOWN, N. Y.

PAGE & LYON
NEW LONDON, WISCONSIN

Manufacturers of and Dealers in

BEE-KEEPERS'

SUPPLIES

Seven per cent Discount during December on all Orders Accompanied by Cash

Send for Our FREE
New Illustrated Catalog and Price List

WISCONSIN

BASSWOOD

FOR SECTIONS

We make them and the very best of **Dovetailed Hives, Shipping-cases,** and a full line of bee-keepers' supplies always on hand. We make very prompt shipments. Let us hear from you.

MARSHFIELD M'F'G CO.
MARSHFIELD, WISCONSIN.

CALIFORNIA
FOUNDATION

EXCELS ALL OTHER

WHY? Because it's made mostly from pure capping-wax, and is tougher and still easier for the bees to work. . . Write for special prices for making up wax. . . The Weed New Process used. . . Satisfaction guaranteed. Exclusive right to manufacture on the Coast. . . . . .

H. J. MERCER
731 E. 3d St. Los Angeles, Cal.

FOR SALE

HONEY-JARS

No. 25 honey-jar, porcelain cover, metal screw-cap, absolutely tight, holding one pound of honey net, in shipping-cases, one gross each.

1-gross lots ....$4.50 per gross
5 " " .... 4.00 "

Also in Strong

Re-shipping Cases

of two dozen each, heavy corrugated partitions, sides, top, and bottom, a perfect protection. . .

1-case lots ....$1.00 per case
5 " .... .95 "
10 " .... .90 "

Eight-ounce Tumblers

Tin caps, three dozen in re-shipping case

5-case lots.........$ .85 per case
10 " .... .80 "
20 " .... .75 "

HILDRETH & SEGELKEN
82-84 Murray St., New York

Chas. Israel & Brothers
486-490 Canal St., New York.

Wholesale Dealers and Commission Merchants in

Honey, Beeswax, Maple Sugar and Syrup, etc

Consignments Solicited. Established 1875

I. J. STRINGHAM,

NEW YORK

Furnishes everything in the line of BEE-KEEPERS' SUPPLIES and BEES.

12-ounce round jars, NICKEL CAPS, $3.75 per gross.
No. 25 jar, nickel or porcelain cap, $4.50 per gross.
1-pound square jars, with corks, $5.00 per gross.
Catalog free.

Salesroom--105 Park Place. Apiaries, Glen Cove, L. I.

Sections and Hives!

No. 1 sections, $3.75; No. 2, $3.25. 1½-story 8-frame L. hive (rabbeted), 95 cts.; Dovetailed, same, $1.25. Foundation at reduced price. Dittmer's Michigan agent. Send for my 24-page illustrated catalog free.

W. D. SOPER, Rural Route 3, JACKSON, MICH.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send $1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

Adulterated!

THIS is the verdict of the Pure Food Commissioners in many samples of pure honey put up in the United States. Hundreds of dollars in fines have been paid by packers in the last six months. Unless you get your honey from your own bees direct, it will pay you to send a three-ounce bottle by mail and have it analyzed before bottling it or using it for market, thus saving yourself a heavy fine, a lot of worry, and probably your reputation.

WM. A. SELSER
Honey - Specialist
10 VINE STREET
PHILADELPHIA, PA.

has made practically a life study of the chemical analysis of all honey-flows, having traveled from ocean to ocean and as far south as Central America, getting the honey direct from the bees, and analyzing it for record, his research being at present on file in the Department at Washington.

Analysis to determine purity only..............$ 3 00
Two samples 5 00
Quantitative analysis................................ 10 00

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail. .· .· .·

Now's the Time to Order

Your bee-hives, sections, shipping-cases, berry-boxes, and crates for the coming season. By sending us a list of goods wanted we can save you money. :: ::

Sheboygan : Fruit-box : Company
Sheboygan, Wisconsin

Farm and Stock is an illustrated monthly magazine in the interest of Corn Breeding, Cultivation and Live Stock. Price $1 a year, but for a short time will be sent a year on trial for 10c and names of ten farmers who grow corn.

Farm & Stock, 251 Charles, St. Joseph, Mo.

Michigan Bee-keepers!

We sell the

Danzenbaker Hive

the comb-honey hive.
If you are interested,
send for the booklet.

* * *

Sections
Implements

Weed-process Foundation.
Everything for the bees.

* * *

Discounts for
Early Cash Orders!

Before January 1...7 per cent
Before February 1..6 per cent
Before March 1.....4 per cent
Before April 1......2 per cent

* * *

We always

Buy Beeswax

and pay top
market price.

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Send for our 1906 catalog.
It is yours for the asking.

WE WISH you a Merry Christmas and—Root's Goods. In other words, we also wish you a Happy New Year.

Root's goods have that quality that comes in using better material, and taking the extra pains to have things just right. We call it Root Quality.

* * *

It pays to use Root's Goods.

Besides the satisfaction that comes from using the best, there is an extra money profit you get in selling an attractive article in a neat package. Root's Goods mean top-notch prices for your honey.

* * *

We want to supply you with Root Quality quicker and with less freight expense than from factory. Will you let us tell you net prices on the goods you will need for 1906? We would like to.

M. H. Hunt & Son, Bell Branch, Mich.

NEAR DETROIT
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Continued from page 1334.

the men of what the boys had done, and asked how many there were in that crowd who would in a like manner raise their hands to indicate they were ready to sign the pledge and begin saving their earnings for the wife and children instead of building up this den of iniquity. *Twenty-four* hands went up.

The next step she took was to tell the men and boys that, as an evidence of good faith, she wanted to stay and see them start off home to tell their mothers, wives and children what they had agreed to do. The nineteen boys and twenty-four men all filed out, one after another. Then she gave the hardened sinners who remained, including the saloonkeeper, a temperance talk that they remembered, even if they did not heed, like the ones who had just gone out.

At the temperance talk Sunday evening she told all about it. The nineteen boys and twenty-four men came forward and signed the pledge. Then she called on those who had lately started to help her in a house-to-house canvass to have the saloons banished from Leipsic. By the time "groundhog day" came around, February 2, they were ready for the election. The saloonkeepers came out of their holes, but went back whipped, and stayed there two years. At that election, two years ago, I think they beat the wets by only eight votes. During the past fall the brewers and saloonkeepers marshaled their forces and demanded another election, thinking they could get back the business they had lost in Leipsic, but they were whipped again worse than before. The second time, the drys won by, I think, 168 votes. And now follows something else that perhaps will surprise you, but it did not surprise me at all. The different churches in Leipsic had been trying for years to get up a revival. They had held revival meetings and weeks of prayer, but all to no avail. The people seemed apathetic in regard to religious matters; but immediately following that first crusade against the saloons a big revival started. If I have made no mistake, every one of those nineteen boys and twenty-four men united with the church, and more than two hundred people came out at that time, trusting in the Lord Jesus Christ. It is not all strange, dear friends, and I think banishing the saloons might start a revival in almost every town in Ohio or any other state. While the saloons were running, the town was several thousand dollars in debt. There is now no debt, notwithstanding the loss of revenue so much talked about that comes from the saloonkeepers. Two years after they were banished, the town was out of debt and had over $3,000 in the treasury; new business enterprises had been established; factories had moved in because it was a dry town; public buildings were put up, and everything was flourishing.

Mrs. Richards here gave us a graphic account that will illustrate what happened in just one humble home. It was the home of the carpenter whose house had been protected two years before with tarred paper, flapping in the wind. Mrs. Richards went to take a train, when she met the carpenter going to his work. She asked him about his wife, children, etc., and he begged her to go and see them, reminding her of what her talk that night in the saloon had done for his family. She found the train was over an hour late, so she went back, caught him before he got out of sight, explained she had an hour to spare, and said she would like to call on his wife, as his home was near by. He was overjoyed at the prospect. When they arrived at the gate he raised his hand as a signal for her to listen. His wife was singing one of the revival songs they used in the meetings, while she did her washing under the shade of the cherry trees in the back yard. She, too, rejoiced to get a glimpse of the outcome of temperance work. The children were in school, neatly dressed, of course. The husband and wife showed their friend and benefactor the improvements made on the house in two years, the new carpet in their best room, and they even took her down cellar and showed her the rows of neatly arranged canned fruit on the shelves—over a hundred cans in all. The happy young wife then said: "When John's money all went to the saloons we did not have a single jar of canned fruit. Once in a great while we got some at the grocery, put up in tin, that was not a bit like ours."

No wonder joy and thanksgiving were in that household. No wonder the happy wife and mother could sing at her work, and be happy all day long. The husband who had been lost—lost through strong drink—had been found. He, like the prodigal of old, had returned to his family and his home.

Mrs. Richards was in California during the last election; but she had arranged to have her friends telegraph to her the result. As she stepped off the train at Los Angeles the telegraph operator was on the platform inquiring if there was a Mrs. Richards in the crowd. She told him she was the woman he sought. "Well," replied he, "here is a telegram that reads, '168 dry. Rejoice with us.' Now, if you know what that means, all right."

She replied: "Yes, sir, I know exactly what it means."

Now, friends, you may be tempted to think this is an exaggeration; but the facts are all before the world. I noticed in the daily papers the announcement that Leipsic had gone dry by a big majority over its first victory, but I did not know the particulars. I know from my own experience—an experience I have given on these pages—that what I have told you is not only possible but probable. There is no question but a single woman, or, for that matter, a single man, in almost any community, with the love of God in his heart, and one who is not afraid, can do exactly what Mrs. Richards did. Hundreds of towns that are now cursed by the liquor traffic could be redeemed and emancipated by the efforts of a single person almost single-handed. The churches and the temperance people are ready to respond; in fact, they have been praying for this very thing for many a long year. All that is needed is a leader; and the Anti-Saloon League is undertaking to educate and drill the leaders.

Mrs. Richards gave us a pretty little story at the close. I think I will call it the "dog story." During a part of her temperance work she visited England. Manv of you are aware that the railway cars across the water are different from ours. There are compartments for a certain number of passengers, and no conductor goes along with the train. The station agent puts the passengers in, and the one at the next station lets them out, etc. Well, on one of these trips a fellow got in who had a big bulldog, and insisted on taking it in the car with him. This dog was rather vicious, and his presence was annoying to the ladies and other passengers. When they arrived at the station there was a general request that the dog should ride somewhere else. The agent politely informed the owner of the dog that he would have to put the animal in the baggage car, as it was against the rules to carry dogs in a passenger car. This man, however, had his own notions and peculiarities. He said the dog did not do any harm, whatever, and he wanted the animal in the car with himself. The agent informed him politely but firmly that the dog would have to ride in the baggage car; but the owner was so ungentlemanly as to tell them to come and put the dog in the baggage car if they wanted to; but when the railroad official proceeded to lay hands on him he showed his teeth in such a vicious way that they gave it up. The door closed, and the passengers proceeded on their way, dog and all. Now, it is not a usual thing to find an Englishman or anybody else so ungentlemanly. But this fellow seemed to be greatly delighted that he had outwitted the railway officials. When they arrived at the second station the passengers again requested that the dog be taken from the car. After the agent, however, (who had been notified by wire), found the fellow was contrary, he apparently gave it up, as did the agent at the previous station; but while the dog's owner pretended to be reading his newspaper very intently, he quietly motioned to the other passengers to step out. After our English friend had waited quite a spell for the train to start he began making inquiries. Then the agent spoke to him something like this:

"Why, my good friend, the train has been gone these two hours. As to when you will start on your journey depends on yourself. You and your car have been standing here on the side track, and I fear that you will have to stay until you can conform to the rules of the railroad company, and comply with reasonable conditions, just as all the rest of the traveling public do."

The dog story was received with clapping of hands, and cheer after cheer. The saloonkeepers and others who persist in defying our laws, and inflicting their hateful business on a patient and suffering public, are just beginning to discover they are "side-tracked," and a good many of them will also find they have been side-tracked when they *didn't know it.* We are marching on.

OUR "ROBINSON CRUSOE" ISLAND.

Friend Root:—I see in GLEANINGS your plan for this winter. Let me tell you about Osprey, for I believe it is the place you are looking for. I live on a key two hundred yards wide—gulf on one side, bay on the other; bay nearly a mile wide. I am told it never freezes on this key. I have been here two years, but have seen no frost. My bees are carrying in pollen and a little honey now. I have five stands, and they are at your service if you will come. I have 35 stands on the mainland, one and a half miles from home. They are the only bees nearer than six miles. Osprey has only a postoffice, a small hotel, one store, and quite a number of residences along the bay; daily mail; telephone, sail boats and launches; oysters, clams, and fish in abundance; ten minutes' sail to postoffice. The railroad is this side of Sarasota. I think it will be to Osprey in three months.

If you need help in queen-rearing, one of my daughters, 17 years old, would be glad to help, to learn the business. The only drawback I see is, I have no empty house. My son-in-law and I have one each. We have a beautiful oak grove. Couldn't you live in a big tent, or build a "cabin in the woods," where you could look out over the beautiful Sarasota Bay?

Last, but not least, we need your Christian influence and teaching. We have a beautiful little chapel, built by a young lady from the North, who died here. The tourist has Episcopal services for about three months, and the rest of the time nothing.

Osprey, Fla., Nov. 28. I. T. SHUMARD.

Our arrangements are now to accept the above kind invitation: and if you wish to write me, direct your letter to A. I. Root, Osprey, Manatee Co., Florida. But let me remind you that, if I am going to raise queens, I shall not have very much time to answer letters, as I shall probably have no stenographer in Florida. I shall be very glad to hear from all of the friends, and I think I can promise you a fairly prompt reply if you will be satisfied with such an answer as can be put on a postal card. We expect to leave Medina on Tuesday, Dec. 12.

SOMETHING FROM THE GOVERNOR-ELECT OF THE STATE OF OHIO.

Just before election Mr. Pattison passed through Medina and called at the Home of the Honey-bees. Somebody informed me that one of his daughters has some bees and has our A B C book. In view of this I wrote him a letter of congratulation, and called his attention to my editorial in our issue for Nov. 15, page 1200. Below is his reply:

My Dear Mr. Root:—I thank you very much for your kind letter of congratulations, particularly your good wishes for the coming administration. I received a copy of GLEANINGS IN BEE CULTURE. I have also read the article on page 1200 with much interest, and thank you for it. Very truly yours,

Cincinnati, O., Nov. 22. JOHN M. PATTISON.

OHIO'S VICTORY.

Never again will any political party in Ohio nominate a candidate for governor, or any other high office, against the united protest of the church and moral forces.—WAYNE B. WHEELER, Columbus, O.

"THE BEST MADE"

DITTMER FOUNDATION

Retail - Wholesale - Jobbing
Used and Sold in Every State of the Union, Canada, and Great Britain

THE astonishing sales of Dittmer's Foundation—from 5000 lbs. in 1899 to 35,000 lbs. in 1905 to date, and which will be 40,000 by Jan. 1st—is due wholly to its merits and our persistent efforts to produce the best, and keep it the best. ❦ ❦ ❦ Our machines and process, which it has taken years to develop and perfect, produces a tough, clear, and transparent sheet, of the natural odor and color of the very brightest pure wax, equal to the lightest lemon and orange, and is a foundation that looks, acts, and smells like beeswax.

We make a **specialty** of **working wax** into **foundation, for cash,** for the **consumer, dealer, and jobber,** by the **tens, hundreds, and thousands of pounds,** at any time during the year; and we are in the very best shape to attend promptly to large orders, our capacity now being 1500 lbs. daily. It will pay you to look into this, and get prices, discounts, etc.

Remember that now is the time to get the best discount on our foundation, working wax for cash,and on our

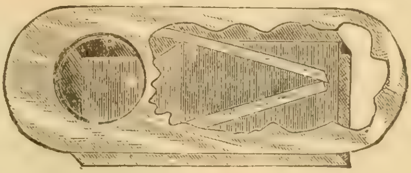
Full and Complete Line of Supplies
of which we carry the best only

Do not fail to write for samples of our foundation, descriptive catalog, prices, and discounts, stating quantity of foundation wanted, wax to be worked, and list of other supplies, and prices will be accordingly. Our large illustrated catalog will be ready about January 1st.

Beeswax Always Wanted

GUS DITTMER, Augusta, Wis.

E. Grainger & Co., Toronto, Ontario, agents for Canada
The Bee and Honey Co., Beeville, Texas, agent for Texas
E. H. Taylor, Welwyn, Herts, Eng., agent for Great Britain



PORTER BEE-ESCAPES

HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, $2.25; postpaid. With board, 35 cts. each; $3.25 per 10; by express or freight.

TESTIMONIALS

They are perfect in action.—British Bee Journal.

No bee-keeper can afford to be without them.—Prof. Cook in American Bee Journal.

Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

They are one of the best things ever brought into any apiary, and should be used in every bee-yard in the whole world.—Wm. McEvoy, Foul-brood Inspector, Ontario, Canada.

There is no robbing or fighting or disturbance in the apiary when the surplus honey is taken off with them. They are simply perfect.—W. Woodley in British Bee Journal.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

PRICES

Each, 25c; dozen, $2.75; postpaid.

TESTIMONIALS

The Porter bee-escape clears the supers of bees so perfectly and quickly and easily that it makes the taking off of honey a pleasure instead of a dread as in former years.—G. M. Doolittle, Borodino, N. Y.

The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

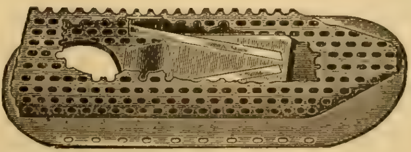
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

For Sale by Dealers Everywhere!



R. & E. C. Porter, Patentees

Send Orders to Your Dealer

THRIFTY TREES
Vigorous Plants
Seeds That GROW

Best in quality and prolific bearers—the kind that yield good returns and give satisfaction. Prices low. Apples 4c; Plum and Cherry 12c; Peach 4c; all budded and good stock. Concord Grapes 2c; Forest Tree Seedlings $1.00 per 1000 up. **Our tested seeds are sold very cheap.** Hundreds of choice varieties — sure growers.

THE GERMAN NURSERIES
CARL SONDEREGGER PROPRIETOR

WE PAY THE FREIGHT ON TREES

Write for our Catalogue (English or German). It's full of good things —just what you want. We send it free on request. Write today. Address the

German Nurseries, Box 33, Beatrice, Neb.

85 cts. for 15 Names. Send us the names and postoffice addresses of fifteen good farmers and fifteen cents—stamps taken—and we will send you for two years the Farmers' Call, a weekly, 25 years old, more than 1200 pages a year; regular subscription price 50 cents a year. Sample copy free.
FARMERS' CALL, Quincy, Ill.

NOTICE!

The firm of Cooley & Deuel

HAS DISSOLVED PARTNERSHIP.

D. COOLEY will continue to sell bee-supplies. All orders will receive prompt attention. Address all orders to

D. COOLEY, Kendall, Mich.

BEE-KEEPERS, ATTENTION!

I have some of the finest Barred Plymouth Rocks in the country, from the celebrated Bradley Bros.' strain. Am booking orders now; $1.00 for 13 eggs.
FRED W. BUTTERY, R. F. D. 43, NORWALK, CONN.

BANTA Incubators & Brooders

Backed by 14 Years of Successful Use by poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book. BANTA-BENDER MFG. CO., Dept. 23, Ligonier, Ind.

GOLDEN OPPORTUNITIES

Exist in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

J. W. WHITE
Gen. Indus. Agt., Portsmouth, Va.
Seaboard Air Line Railway

GET WINTER EGGS
without artificial heat, egg-foods, stimulants—an easy, inexpensive positive way. Our FREE booklet tells how to prevent fowls suffering from roup, colds, cholera, loose bowels, etc., and how to get eggs in coldest weather. Send a postal to-day to
CHARLES SCHILD CO., 1 Frankfort St., Cleveland, O.

ADVANCED BEE-VEIL.
Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face.
50 CENTS, POSTPAID.

Michigan Distributors

—FOR—

G. B. Lewis Co.'s Beeware, Dadant's Foundation.

WITH AN ENORMOUS STOCK, AND THE BEST SHIPPING-POINT IN MICHIGAN, WE ARE IN A POSITION TO GIVE YOU THE VERY BEST SERVICE. REGULAR DISCOUNTS ALLOWED.

SPECIAL.—A quantity of Dovetail and Wisconsin Hives, slightly damaged by water, in packages of five at $1.25 per hive for 1½ story 8-frame; 10-frame, $1.40 per hive. Satisfaction guaranteed.

A. G. Woodman Co.,
Grand Rapids, Mich.

SOUTHERN BEE-KEEPERS!

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from WHITE MANUFACTURING CO. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

White Manufacturing Co., Blossom, Lamar Co., Tex.

ANNOUNCEMENT.

The undersigned has bought the bankrupt stock of H. H. Hyde, late of San Antonio, Texas, consisting of eight and ten frame bee-hives, sections, frames, foundation, smokers, extractors, and every thing used by bee-keepers.

The problem that now confronts me is how to dispose of the stock to advantage. The writer will go to Texas and try to establish a distributing agency at San Antonio, to which carloads may be shipped from time to time. I wish now to hear from bee-keepers who wish to buy for cash, and also from responsible parties, preferably hardware or lumber dealers, who will put in and carry a retail stock of bee-hives and supplies. It is for your interest to have as much competition and as many retail stores carrying bee supplies as possible. You will, therefore, do yourself a favor by making inquiry among the dealers in your locality, and by inducing somebody to purchase a stock from me. I will keep you posted through my monthly bee journal, THE RURAL BEE-KEEPER, in which L. B. Smith, of Rescue, Texas, conducts a department, and such authorities as L. Stachelhausen, J. E. Chambers, E. O. Swafford, of Abilene, and others, are contributors. Regular subscription price $1.00 a year; six months' trial, 25 cents.

To any bee-keeper who will so interest some reliable dealer and secure such a customer for me I will send THE RURAL BEE-KEEPER one year FREE. Yours truly,

W. H. PUTNAM,

Dec. 1, 1905. **RIVER FALLS, WIS.**

BEE - SUPPLIES

Distributing-house for Lewis' Goods, Dadant's Comb Fonndation, etc., at Factory Prices. . . . . .

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before January, 7 per cent discount.

FINE EXTRACTED HONEY » » »

The best the world can produce. Sample sent, 8 cents. How much can you use? *We always buy beeswax.* Catalog and "Special" free.

C. M. SCOTT & CO.
1004 E. Washington St.
Indianapolis : Indiana

Bee-keepers, Co-operate!

We are Bee-keepers--Organized in the Interest of Fellow Bee-keepers
(No Matter where They Live)

Membership dues, $1.00 per year.

Present membership—about 200 bee-keepers.

Our 1906 price list of bee-supplies, and a leaflet containing valuable information, are now ready to mail.

If you wish to assist in co-operation among bee-keepers write us now and send the names and addresses of all your neighbor bee keepers.

The St. Croix Valley Honey-producers' Association
Headquarters Until June 1, 1906
Glenwood, Wisconsin

We are now Located at

COUNCIL BLUFFS, IOWA

The ever increasing demand for our goods necessitated the erection of a larger factory, with better shipping facilities. . COUNCIL BLUFFS, IOWA, is the greatest western railroad center, with fifteen railroads radiating in every direction, with freight rates for the West the same as from Omaha. Here we have just completed the largest factory of its kind in the West; modern, up-to-date in every detail; as the oldest manufacturers of bee-keepers' supplies (42 years' actual experience) we have gathered many valuable ideas for the erection of a complete factory, fitted with the best labor-saving machines, many constructed expressly for our work, operated by ten electric motors, all in charge of experienced workmen, nearly all of whom have been with us for years.

A railroad track not only runs to the doors of our factory and warehouses, but also through the entire length of lumber sheds and yards, so that carload shipments can be loaded or unloaded direct into warehouse and factory; paved streets right to the door of the factory enable us to haul immense loads of goods for local shipments, with little expense for drayage.

Wherever you are located, we can now make you Direct shipment over this network of railroads, for less freight, in less time, and less damage to goods than from any other source. . By thus handling our material expeditiously, with the best arrangement of labor-saving machines, and material increase in working capital, we are now, more than ever, in position to supply you with the Best goods now produced, at the same price charged for inferior goods.

Satisfaction guaranteed. Send for free catalog.

Kretchmer Manufacturing Company

Council Bluffs, Iowa

ABOUT DISCOUNTS

EVERY bee-keeper in the United States should fully understand the advantages of the early-order discount offered by all the dealers in Root's Goods.

There are three ways they affect you personally.

First.—You save money on every dollar's worth of goods you purchase before the rush season. Just for convenience in figuring we will assume that you will need $100.00 worth of supplies. The discount for December is 7 per cent. If you put off ordering until April 1st you obtain no discount. Thus, for being three months forehand you save $7.00; and $100.00 drawing 4 per cent interest for this time would earn only $1.00. But you earn seven times as much —28 per cent. Worth while now, isn't it?

7 per cent

Second.—You save losses in more ways than more money. During the next few months you will have times when you have ample opportunity to nail your hives and fit your supers—time enough to do a first-class job of it. After April 1st every thing is hurry, hurry. Wasn't that the case last year? Now imagine your hives all stacked up ready for new swarms, and supers ready to go on at a moment's notice. All ready! That's what makes a successful bee-keeper. Twenty-four hours' waiting would mean a great difference in the crop. Worth a little thought just now—no?

Third.—You save annoyances all around. If you wait until April 1st, every chance is that you will fail to receive your goods promptly. The agent will be out of goods or the factory behind with orders, or the railroads will be unearthly slow in delivering the goods; bees swarming; honey rolling in; no supplies. Ever been in such a pinch? Just think, too, how much trouble you will save other people. Why not try the safer plan this season?

You have nothing to lose. Almost any one can figure very close his needs only 4 months in advance. A few extra supplies will keep without deterioration till next season. Better sure than sorry.

But how can the manufacturer and agent afford to give such liberal discounts? It's very plain. Under ordinary circumstances 75 per cent of their business comes within four months of the year. That is 25 per cent in 8 months. Those eight months are a worry. Then they need money, work for their employees, room for the stock which they must carry. That's why they need your orders then, and are glad to pay for them—just what the discount is.

The discounts are as follows: December, 7 per cent; January, 6 per cent; February, 4 per cent; March, 2 per cent; after April 1, no discount. These discounts apply to all goods listed in general catalog intended for next season's use.

Let's co-operate!

You help us and we will aid you.

THE A. I. ROOT COMPANY

:: NINE BRANCHES :: **MEDINA, OHIO** HUNDREDS OF AGENCIES

CHICAGO **PHILADELPHIA** **NEW YORK**

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES.

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed=Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee=veils, Pouder Honey=jars, and, in fact,

EVERYTHING USED BY BEE=KEEPERS.

Headquarters for the Danzenbaker Hive.

If in Need of Finest Grade Honey

to supply your local demand write for my

Monthly Quotations of Indianapolis Honey Market

If you care to secure your bee-supplies now for next season's use I will offer the following very liberal discounts. As an investment every thoughtful bee-keeper should be interested. Goods all "Root Quality."

For Cash Orders Before

January 1........	7 per cent	March 1	4 per cent
February 1.......	6 per cent	April 1	2 per cent

## BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight, always being sure to attach your name to the package. My large illustrated catalog is free. I shall be glad to send it to you.

WALTER S. POUDER,

513--515 Massachusetts Ave., - INDIANAPOLIS, IND.

A LARGE STOCK OF HIVES
ON HAND--OVER 2000

So you see we can fill orders promptly. Sections nearly a million. Our storehouse in Syracuse will hold 20 carloads of bee-supplies —send in your order for anything needed. If you have any wax we will allow you prices quoted in GLEANINGS from time to time. We take it any time of the year.

7 per cent discount for December cash orders.

THE A. I. ROOT COMPANY
SYRACUSE - - - - NEW YORK

WHEN ATTENDING THE
NATIONAL BEE-KEEPERS' CONVENTION
AT CHICAGO, DEC., 19, 20, 21
COME AND INSPECT
LEWIS' BEEWARE
AND MAKE YOUR HEADQUARTERS AT
York Honey and Bee Supply Co.,
(Not Incorporated)
141-143 Ontario St.,
Chicago, - Illinois,
Long Distance Phone, North 1559

H. M. Arnd, Mgr.

Catalog and prices on honey on application. If you want good goods at factory prices and prompt shipment, send your orders, or call on us.

BEESWAX WANTED

26c cash, or 28c when taking bee-supplies in exchange, delivered here.

7 per cent DISCOUNT
IN DECEMBER

. . . Keep Bees . . .

Few realize that they can keep bees. They are afraid of stings. If you learn the habits of the bee and how to handle them there is no danger in the least. They can be made very profitable. Few specialties are so much so. Two or three colonies with a little care can be made to supply a family with honey, and a surplus for selling. Bee-keeping is a fascinating occupation. It is a fine fad. The more you learn about the little fellows the more you like them.

Our printed matter is a great help to those who are studying the bee. It will teach you how to become a successful bee-keeper. We shall be pleased to send, free of charge to those who are interested, any of the following pamphlets: "My First Season's Experience with the Honey-bee," "Habits of the Honey-bee," "Book for Bee-keepers," "A Morning with the Bees," "Outfits for Beginners." Also ask for our general catalog.

If you wish to purchase an outfit of bees, write us. We can furnish you with every thing you need. We have eight branch houses, and many agents all over the United States, and can supply you promptly, and at a saving of freight.

The A. I. Root Company,
Factory and Executive Office, **Medina, Ohio.**
Branches.

CHICAGO, ILL., 144 East Erie St.
PHILADELPHIA, PA., 10 Vine St.
NEW YORK CITY, N. Y., 44 Vesey St.
SYRACUSE, N. Y.
MECHANIC FALLS, ME.
ST. PAUL, MINN., 1024 Mississippi St.
WASHINGTON, D. C., 1100 Maryland Ave.
Agencies Everywhere.

DANZENBAKER HIVE.

"**Facts About Bees,**" a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. **Send for it.**

THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.
You can produce better-looking honey.

QUANTITY.
You can produce more of it.

PRICE.
You can get more per pound for it.

THE A. I. ROOT CO.
MEDINA OHIO

Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

Union Bridge, Md., Feb. 9, 1904.

The A. I. Root Co., Medina, O.

Gentlemen:—I saw in a recent issue of your paper that you have a department called "Reports Encouraging." I shall send you my report.

I use the Danzenbaker hive and will give you report of the same, as the few Dovetailed hives that I use do not compare at all with the Danzenbaker. One colony gave me over one hundred pounds No. 1 white honey, and the rest averaged about sixty, with an increase by natural swarming of one hundred per cent. A friend of mine who uses all sorts and kinds of hives in his apiary succeeded in making scarcely enough honey to pay for the foundation used in the sections. This was about two miles from my apiary. Long live the Danzenbaker hive. It is just the thing for this locality.

Yours truly,
J. B. Hollopeter.

⁂

Mallet Creek, O., Sept. 25, 1902.

I now have 250 colonies of bees, of which 170 are in Danzenbaker hives, and shall have all my bees in Danzenbaker hives next spring. During the past poor season. 30 or 40 of the colonies in the Danzenbaker hives gave over 100 pounds surplus. On the average I get more than double the amount of honey from these colonies that I do from those in the old chaff hives. With a seven-inch telescope cover, the Danzenbaker hive winters the bees better than the chaff hives. Vernon Burt.

I have used both square and tall sections in all my apiaries five years, and I know from practical experience that it will pay to discard the 4¼ sections, and use only 4x5 sections, and the Danzenbaker hive with the fence separator. They have made enough more this season in the same yard to pay for the hives. I have made *more money* this season per hive than I have any previous year in my 15 years of bee-keeping. Fifteen of my strongest Danzenbaker hives made a ton of honey. When it comes to sales, I get more for the 4x5 sections, and have no work in cleaning them. I ship them as I take them from the super. This is not the case with the 4¼ section. I make honey to sell, and anything that sells the best, and for the most money, is what I want out of the bee-business. S. D. Matthews.

In Gleanings, p. 931, Dec. 15, 1899.

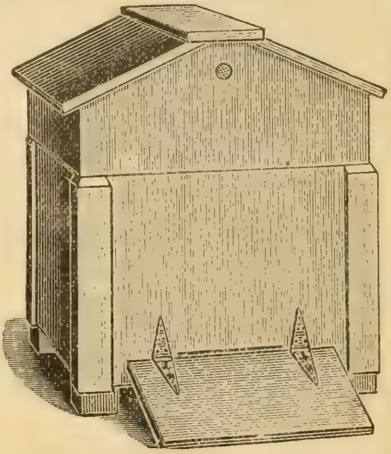
⁂

Rock Valley, N. Y., Feb. 22, 1901.

My bees gathered no surplus after July 1. I had only 1200 pounds, but I obtained a fancy price—15½ for "Fancy" and No. 1 white, and 14½ for No. 2 here at my station for all the Danzenbaker 4x5 plain sections used on our hives, while I got only 14 and 13 cents per pound for the 4¼x4¼ square sections, and I consider that much difference is worth looking after—don't you? The Danzenbaker hives doubled up, two brood-chambers, are in fine condition, even better than my double-walled hives. I intend to build a bee-cellar and work off my double-walled hives as fast as I can, and get the Danzenbaker hives. Very truly yours, J. L. Haight

F. Danzenbaker, Patentee, Miami, Florida
For Sale by all Leading Dealers in Bee-keepers' Supplies

Hilton's Chaff Hive



fortifies your colonies against sudden changes of weather in spring and fall. Only a little extra work necessary to change them for winter, and make them frost-proof. This work can be put over until late in November or December, after the busy time at this season of the year.

The double cover with ventilators enables the bees to continue work in supers during the intense heat of summer, where the hives, of necessity, are exposed to the sun during the middle of the day. Ask for copy of report from Michigan Agricultural College, regarding "Double v. Single Walled Hives."

A large part of many apiarists' time is consumed in shifting from winter to summer, and summer to winter quarters, which could be well spent in caring for a larger number of colonies. This is overcome by using Hilton's Chaff Hive.

Prices of Improved Double-walled Hives

One hive, nailed and painted	$2.75
Ten hives " " at	2.70
One hive, nailed as sample, no paint	2.50
IN THE FLAT	
One hive, including frames and nails	2.00
Five hives, including frames and nails	1.95
25 or more " " "	1.90

The above prices are for eight-frame hives. For nine-frame hives which I keep in stock, add 5 cts. each. Above prices do not include supers.

Prices of Hilton's T Super, including Hilton's Separators

One super, as sample, nailed	35c
Ten or more supers, nailed	33c
One super in the flat	30c
Five supers in the flat	29c
25 supers in the flat	27c
50 or more	25c
If fence separators, add	5c

Full Line of Root Goods

TRAVERSE CITY
MANISTEE
MICHIGAN
FREMONT
SAGINAW
MUSKEGON
GRAND RAPIDS
LANSING
DETROIT
BATTLE CREEK

I Carry a Complete Stock

of all kinds of bee-keepers' supplies, Danzenbaker Hives, Root's Dovetailed hives, Root's Chaff Hives, Root Corneil Smokers, Doolittle Wax-extractors, and Alley Traps, etc. ∴ ∴ ∴

In the Heart of Michigan

Within a hundred miles of me are over three-fourths of the bee-keepers of Michigan. I am on the Pere Marquette Railroad, which completely covers this region. Factory prices, prompt service, low freight. 36-p. catalog free.

George E. Hilton
Fremont, Mich.

SPECIAL NOTICE
Special Notices
By Our Business Manager

PRICE OF BEESWAX.

Until further notice we will pay 27 cts. cash, 30 cts. in trade, for average wax delivered here. As the early-order discount grows less we reduce the difference between cash and trade price of wax.

LANTERN-SLIDES.

We now have a good assortment of lantern-slides for illustrating lectures on bee-keeping. Parties interested will be furnished with a list of subjects, and terms for rental or sale.

HONEY WANTED.

White clover and basswood comb and extracted honey wanted. We can pay a good price for a large lot of extra-fancy basswood in Danzenbaker sections for an export order. State quantity, and price wanted. Send sample of extracted.

EARLY-ORDER DISCOUNT.

The discount for December cash orders is 7 per cent; and many who have not ordered in previous months are taking advantage of this discount before it grows less. After January the discount drops off two per cent a month.

DRONE-EXCLUDING ZINC.

Several years ago we advertised perforated zinc that will exclude drones, but allow the queens to pass. Before disposing of the Tinker machine on which this was made we prepared a good supply of sheets 24x40 in size, and we still have a good part of this stock, as it has not been listed in recent catalogs. To those who have use for such zinc we shall be pleased to furnish this at 75 cents per sheet.

OUR 1906 CATALOG.

Before the Jan. 1st GLEANINGS goes to press we expect to have the first 100,000 catalogs for 1906 pretty well completed. The large editions of GLEANINGS, and the increased size, has kept our presses so busy that we haven't had time to push the catalog as we should like. Although we have been running our big press night and day for weeks we have had to have help on this first 100,000 catalogs from outside in order to get it out on time.

THIS ISSUE.

The paper required to print this issue of GLEANINGS weighs 16,000 pounds. Not counting the cover there are 240,000 impressions on our large 16-page press, or four million pages. At the low newspaper rate of postage, one cent a pound, it costs $160 in postage alone on this one number. Forty thousand copies of 100 pages each are printed and mailed — the largest size and largest number of a bee paper ever made.

GLEANINGS FAIR CONTEST FOR 1905.

The contest closed Nov. 15th, and was satisfactory in every way. The following were the winners. Trial subscriptions count one point; and yearly subscriptions (new or renewal) count two points.

1st prize, $10, J. P. Berg, Washington, 41 points.
2d prize, $5, F M. Roseman, Nebraska, 34 points.
3d prize, $3, H. S. Duby, Illinois, 22 points.
4th prize, $2.50, E. Grainger & Co., Ontario, 20 points.

We will doubtless inaugurate another fair contest in the fall of 1906. GLEANINGS readers should, whenever possible, enter our subscription contests. The entries are always light when compared with other magazines, and our prizes are very liberal. A little extra work is well rewarded. Notice that three of these prizes went to parties located in somewhat remote points where bee-keepers are not as numerous as in many places, showing how easy it is to get a prize, even under unfavorable conditions.

The Western Fruit Grower.

One of the best, if not the best, fruit-papers that reaches us is The Western Fruit Grower, published at St. Joseph, Mo. It comes monthly, filled with valuable articles, and its pages crowded with clean advertisements. The typographical appearance is extra good.

Every number has a special cover design printed in two colors. Every issue is devoted to some special subject. The following are the ones for the next four months:

January, Horticultural Society Number.
February, Spraying Number.
March, Gardening Number.
April, Small-Fruit Number.

Gleanings heartily recommends this paper to its readers. Bees and fruits naturally go together, so every bee-keeper should read at least one good fruit-paper.

FOR SALE.—One Barnes foot-power buzz-saw.
F. W. STEVENS, Rt. 1, Box 53, Moore's Hill, Ind.

FOR SALE. White Wyandotte cockerels; selected stock; farm-raised; bred from 200-egg strain; $1.00 to $1.50 each. F. B. YOCKEY, Apollo, Pa.

FOR SALE.—Golden Italian queens from select stock, 40 cts. each for orders received before Jan. 20, spring delivery. Try a dozen; I guarantee satisfaction. M. O. office, Ariton. W. S. MCKNIGHT, Newtopia, Ala.

FOR SALE.—Eighty acres of fine land—no better in Iowa or Illinois—at $65 per acre; better than money at 6 per cent; joins $75 and $80 farms; title clear. Write me. D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

FOR SALE.—All or part of apiary for cash; or will exchange for young Guernsey cattle in fair condition. Shipping-point, Canton, Ohio.
ELVERT W. HAAG, Route 2 New Berlin, Ohio.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Western bee-keepers, if you use foundation or have any beeswax you wish made into foundation, write to the Delta Apiaries, Delta, Colo., for free samples and prices; 25 years' experience. A big discount from ruling prices, and on this winter's orders.

FOR SALE.—Fifty portico Langstroth hives, $50; 25 Jumbo hives, 500 Langstroth and Jumbo brood-frames; one honey-extractor, $5; Barnes foot-power saw, $15; 50 Doolittle division-board feeders; honey-tanks, Hill devices, etc. R. C. HUGENTOBLER, Miami, Ohio.

FOR SALE.—One-horse sweep-power, speed-jack, rods, and belting, Daisy green-bone cutter; a bargain; price $25. One Odell double-bar type-writer, good as new; price $7. A small quantity of shallow extracting-frames; price 10 cts. each. Address
WM. FINDLAY, Basco, Hancock Co., Ill.

FOR SALE.—Weed-process foundation business; a rare chance to buy a foundation business with good growing established trade; price $800.
H. F. HAGEN, Denver, Colo.,
Or The A. I. Root Company, Medina, Ohio.

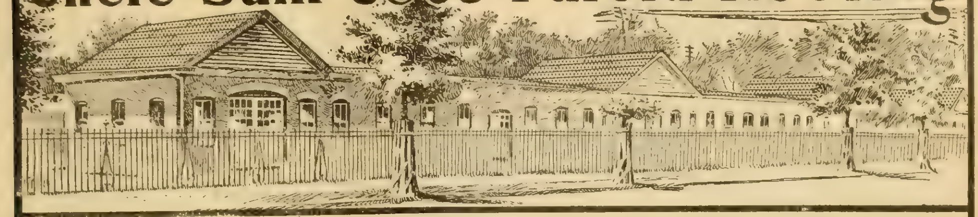
FOR SALE.—300 acres of land six miles from a thrifty town; 40 acres in cultivation, 40 acres timber, balance pasture; all new land, partly underlaid with good coal. Price $17.50 per acre if sold soon. For particulars address A. O. YOUNG, Appleton City, Mo.

FOR SALE.—Fifteen Dadant hives. painted; also joints painted before nailing; used 1½ years; consisting of bottom-board, body, and cap; brood-frames nailed and wired. Price each, $1.60 f. o. b. here.
WM. UECK, Dorchester, Wis.

FOR SALE.—Custom sawmill and farm of about 80 acres, with about 32 cleared; new 15-room house; daily capacity about 4 to 5 M; price $6500. For further particulars address No. 74, Route 2, Dorchester, Wis.

FOR SALE.—Ten AE5-8 hives, nailed and painted; ten 2P-8 supers, and ten 2S-8 supers; in use two seasons, but good as new. Root's catalog price over $30.00, but $20.00 will buy the lot. Also have some bees in box hives at $2.00 a colony.
W. T. ANDERSON, R. F. D. 4, Erin, Tenn.

Uncle Sam Uses Paroid Roofing



PAROID ROOFING is the most economical, the most durable, and the most satisfactory of all ready roofings.

The above illustration is from a photograph of the Plant Industry Building, U. S. Department of Agriculture, Washington, D. C.

It is located in the heart of the city, and is covered with Paroid Roofing.

The Government also uses Paroid for stables, barracks, warehouses, etc.

It uses Paroid because it finds nothing its equal.

Uncle Sam is a careful buyer.

It will pay you to follow his example.

The illustration below shows

PAROID ROOFING

on all the buildings of the Monmouth Poultry Farm, Freneau, N. J. This is one of the biggest poultry-farms in the country, and we would like nothing better than to have you write to these people and get their opinion of Paroid for roofing and siding.

Thousands of other poultry-raisers, dairymen, and general farmers all over the country are keeping their buildings dry and warm with Paroid.

The basis of Paroid is an extra strong and heavy felt, which insures permanency and durability.

The extra saturation this felt receives in our special solution makes it absolutely proof against heat and cold.

It keeps the cold out.

It keeps the heat in.

Sparks and cinders have no effect upon it.

It is proof against gas and acids.

* * * * *

Remember! Paroid contains no tar.

The dressing it receives contains nothing that will taint rain water.

It will not run or crack in any climate.

Aside from all of its real substantial qualities, people like it because it is easy to put on.

A complete roofing kit is packed in every roll, and this enables any one to put it on in any kind of weather.

And when it is once put on it stays put.

Besides, it doesn't require painting when first laid either.

There is just one reason for the universal use of Paroid, and that is quality.

And the reason for that quality is close to a century's experience.

The mills where Paroid is made were established in 1817.

There is roofing knowledge in it, and a record back of it.

It is the standard in quality, yet low in price.

* * * * *

If it pays to protect live stock from cold and wind and rain and sun, it pays to use Paroid Roofing.

If it pays to protect farm implements, grain, and hay from the weather, it pays to use Paroid Roofing.

Wherever a roof is needed
It pays to use Paroid,
The Roofing that Lasts.

If you think of putting up a building, or repairing an old one, *Send for a Free Sample of Paroid*, and ask for the name of our nearest dealer.

We have a book of poultry and farm building plans that is worth a good deal of money to any one who thinks of putting up a barn or any sort of outbuilding.

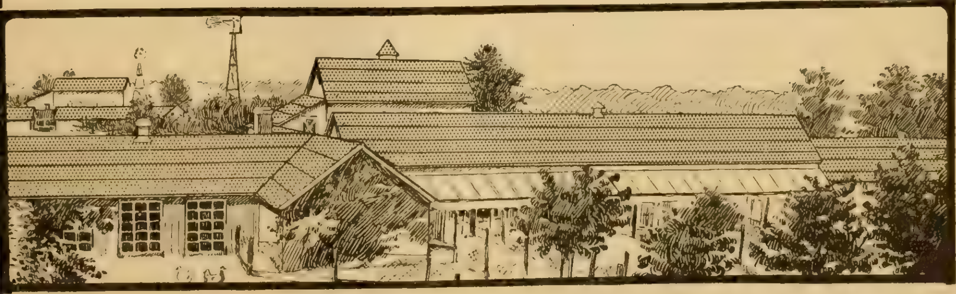
You can have one of these valuable books free by sending a two-cent stamp to cover postage.

Write for the sample and the book now while you think of it.

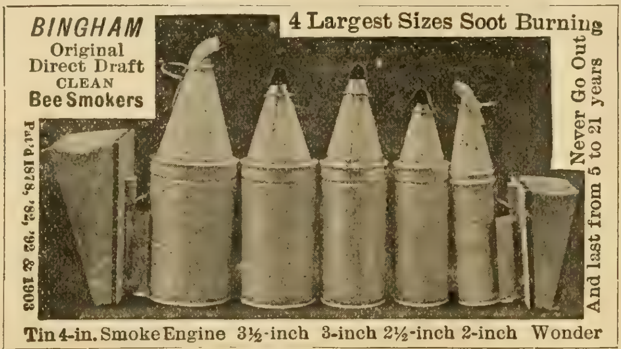
F. W. BIRD & SON (MAKERS)

Originators of the Complete Roofing Kit—Fixtures for applying in every roll

E. Walpole, Mass. Established 1817 **Chicago, Illinois**



INVENTION



Bingham made and sold the first and original Bellows Bee-smoker that would burn stove wood.

Bingham made and sold the first and original beveled Uncapping-knives.

Bingham made and sold the first and original bent-cap and wire-handle Smoker for turning the smoke sidewise and downward without turning the Smoker.

Bingham made and sold the first and original Smokers that turned the smoke-tar into smoke instead of over the smoker on the outside and into the joints.

Bingham made and sold the first and original closed-end frame Bee-hives in 1863.

Bingham made and sold the first and original square Bee-smoker Bellows with spring valve and double-cleated joints.

Bingham make and sold the first and original five sizes of Bee-smokers.

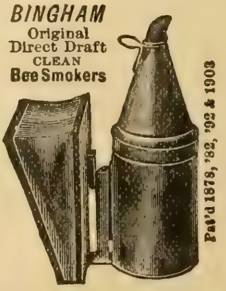
Having made all the above tools, and improvements upon them, is it any wonder that in getting a Bingham tool you get the best?

Rev. L. L. Langstroth made the hive that has stood the test for fifty years. Bingham made the smoker that has stood the test twenty-seven years.

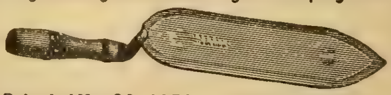
Below is a part of the direction card sent with all Bingham Smokers, viz.: "This Bingham Smoker comes to you ready to use, not a bolt nor screw to turn. If you have our four-inch Smoke Engine please send us a card and say how you like it. Mention its faults. They have been in every country the standard of perfection. They have always pleased every one—we hope they will please you."

The above *invitation* has brought us hundreds of complimentary letters and only two uncomplimentary ones.

Mr. Charles Dadant & Son, in their catalog, say "Bee-smokers being one of the most useful and probably the most indispensable instruments used in the apiary.



Original Bingham & Hetherington Uncaping Knife



Patented May 20, 1879. BEST ON EARTH.

All Bingham Smokers have elastic barrels and cover. If they get stuck they can be sprung and opened without injury.

Wholesale prices on application. Mail rate, delivered free at your own postoffice.

4-inch Smoke Engine	$1.50	3-inch Conquerer	$1.00
3½-inch Doctor	1.10	2½-inch Large	.90
2-inch Little Wonder	$ .65		

We make smoker barrels of *heavy* copper if ordered, but charge 50 cents more than for tin the same size. They are heavier, and don't rust out.

We have many letters stating that many of our tin Smokers have lasted 20 years.

T. F. BINGHAM FARWELL, MICH.

United States Department of Agriculture, Bureau of Entomology,
Chico, California, October 28, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. Rankin,
Special Agent in Agriculture.

THE SWARTHMORE SYSTEM

OF QUEEN-REARING

WHY DEVOTE your entire attention to honey production? You say you can buy your queens cheaper than you can rear them yourself. Possibly this is a mistake. Every honey-producer should acquaint himself with the best methods of rearing queens so as to supply his own yard at the greatest economy. With a Swarthmore Outfit and a good breeding queen you will find no difficulty in stocking your colonies with vigorous young queens. Queen-rearing is a science; but with a careful study of the books we list low, and an outfit, you will be surprised at the ease with which queens are raised, and the dollars you will save. Get a good breeding queen to breed from.

Swarthmore Books

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life, and vividly showing all the labor-saving points in the best cup system ever invented. Price, postpaid, 50 cents.

BABY NUCLEI.—In this book Swarthmore thoroughly covers the field of small mating nuclei management. He has had twenty years' experience in mating young queens from section combs with but a handful of bees, and feels competent to write on the subject. Price, postpaid, 50 cents.

INCREASE.—This little book interests all who are anxious for profitable increase. It tells how to form new colonies without breaking the full ones; no labor; little trouble; safe introduction of queens directly. The colony formed on this plan works like a new swarm. Price, postpaid, 25 cts.

During the winter of 1603 I lost all my bees excepting a colony of Goldens. By Swarthmore's method of "Increase" I have made good all losses, and have just taken off seven full-depth supers of honey.—Geo. H. Mohler, Pa.

Swarthmore Queen-rearing Outfits

Prices of Complete Outfits:

Outfit No. 1—Experimental

Postpaid, $1.50

1 Cell-bar,
16 Waxed Flange Cups,
1 Holding-frame,
12 Transfer-cages.

Outfit No. 2—Amateur

Postpaid, $3.50

2 Cell-bars,
35 Waxed Flange Cup,
1 Needle,
1 Holding-frame,
18 Transfer-cages,
1 Cell-stick.

Outfit No. 3—Professional

By Freight or Express, $7.50

2 Blank bars,
3 Holding-frames,
1 Cage-pocket,
1 Grafting-plug,
2 Double mating-boxes,
1 Bar-holder,
1 Swarm-box with lid,
2 Cell-bars,
1 Incubating-cage,
1 Grace Cell-compressor,
100 Flange Cups,
2 Swarth. nursery-cages
24 Transfer-cages,
1 Needle, 1 Stick.

Prices of Separate Parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
Breeding-queen Hive	1.00	
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange cups, unwaxed, 1c each; per 100.	.75	.09
Flange-cups, waxed, 2c each; per 100	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, $1 00; 10	7.50	
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
Trap-box	.50	
T Stands, each	.10	.06
Transfer-cages	.10	.02

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES

Wants and Exchange.

WANTED.—To exchange bee-supplies (Root's) for beeswax. A. H. REEVES, Perch River, N. Y.

WANTED.—Old-fashioned straw hives or skeps.
E. S. HACKER, Ephrata, Pa.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange Aikin honey-bags, a 200-egg Reliable incubator, and brooder, for honey.
CHAS. KOEPPEN, Fredericksburg, Va.

WANTED—100 colonies of bees to work on shares—or buy—in States of New York or Pennsylvania U. S. L. T. LEACH, Orillia, Ont., Can.

WANTED.—Colonies of bees in any kind of hives or boxes with plenty of honey. State price.
H. A. ROSS, Evansville, Ind.

WANTED.—Honey, wax, slumgum, or supplies, in exchange for standard-bred White Wyandottes.
H. E. CROWTHER, No. Kingsville, Ohio.

WANTED.—Raw furs of all kinds. The highest cash prices paid. Prices on application. Goods held separate if you wish. O. H. MORLEY, Hector, N. Y.

WANTED.—Eight-frame hives for cash, or for 360-egg Cyphers incubator.
JOHN T. GREENE, Ovid, N. Y.

WANTED.—Refuse wax and old comb for cash.
J. W. ROCKWOOD, Brigham, Utah.

WANTED.—To exchange pedigreed red Belgian hares for, or will buy, foundation-mill, foot-power saw, or Mann's bone-cutter.
ALBERT ZIEGLER, Bippus, Ind.

WANTED.—To exchange 10-inch foundation-mill, 2-inch rolls, new, for Langdon or Stanley miter-box and saw, or offers. FRANK LACEY,
81 North St., Danbury, Conn.

WANTED.—To trade a good as new No 3 200-egg Reliable incubator, for a first-class coon hound (female). Give full particulars, age, habits, etc., in first letter. G. M. WITHROW, Mechanicsburg, Ill.

WANTED—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted.
A. L. BOYDEN, Medina, Ohio.

WANTED—To exchange gentleman's second-hand bicycle for ncubator.
JAMES SAYLES, Gay Hill, Texas.

WANTED.—New comb honey—crop of 1905. We believe it would pay those having it in car lots or otherwise to write us. Give us your lowest spot-cash prices, and fully describe the goods and style of package, when you can ship, etc. We handle more of these goods than any other firm in the U. S. Yours for business,
THOS. C. STANLEY & SON,
Manzanola, Colo., and Fairfield, Ill.

Wanted, Situations.

WANTED.—A position to take entire charge or as an assistant in apiary. Reference, The A. I. Root Co.
F. E. SCHRIVER, Route 2, Forest, Ohio.

WANTED.—Situation by the year with western bee-keeper (California preferred) by young man of good habits. Previous experience on farm and as carpenter. Satisfactory references.
CLEVELAND G. RENNINGER, Route 4, Tiffin, Ohio.

WANTED.—Position as manager of fruit farm or store; experience buying, packing, and growing apples, etc., for export; some knowledge of bees; college graduate; ten years' experience; understand cider-making on large scale. W. E. BIRCH, Afton, Va.

WANTED.—Position with some bee-keeper in Southwest Texas. Five years' experience; handy with tools; no bad habits. R. J. ADNEY, Dardanelle, Ark.

Help Wanted.

WANTED.—A sober, honest, reliable young man by the year at good wages who likes bee-keeping.
W. S. GROW, Naples, New York.

Addresses Wanted.

WANTED.—Parties interested in Cuba to learn the truth about it by subscribing for the Havana Post, the only English paper on the Island. Published at Havana. $1.00 per month; $10.00 per year. Daily except Monday.

For Sale.

FOR SALE or exchange, choice S. C. Brown Leghor cockerels. J. F. SEMPERS, Aikin, Md.

FOR SALE.—My apiaries of 300 colonies near Macon, Ga., the third healthiest city in the U. S., a ready market for output at a fancy price. Prefer selling a half-interest to a good practical bee-man to take charge. If you mean business, address for particulars
JUDSON HEARD, Atlanta, Ga.

FOR SALE.—100 colonies bees and fixtures for comb and extracted honey; all up to date; never had a failure; over 5000 lbs. this year. Good reason for selling. Write for terms. H. M. BARBER, Mancos, Colo.

FOR SALE.—Barred Plymouth Rocks, bred from good laying strains. Cockerels, $1.00; pullets, $2.00.
MRS. W. L. BENNETT, R. D. 1, Crooksville, Ohio.

FOR SALE.—Eight acres on foothills, 'twixt orange and sage; 135 stands bees, three stories; good bee-house, etc. HALL, 29 Nordina, Redlands, Calif.

FOR SALE.—Caucasian queens bred from the best imported Caucasian breeding queens; nuclei and full colonies of gentle Caucasian bees; also Italian bees and queens. Write
A. E. TITOFF, 3203 S. Main St., Los Angeles, Cal.

FOR SALE.—150 colonies of bees, 30 in Danz. and balance in Root eight-frame Dovetailed hives, at $3.50 per colony complete, in excellent condition for winter; heavy stores; a great bargain for the price. If interested, write for further particulars.
W. M. BAILEY & Co., Spartanburg, S. C.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take $1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season. W. N. CANNON, Greenville, Ala.

FOR SALE.—We are prepared to furnish millstones, window and door sills, cobblestones, etc., in any shape or quantity, from the celebrated Brush Mountain grit; suitable for grinding all kinds of paint, barytes, clay, cement, grains, etc.
STANDARD MILLSTONE CO., Vicar Switch, Va.

FOR SALE.—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Different kinds of cow peas, stock peas, etc. Write for prices Buy now before they advance.
E. R. MILLER, Hearing, Norfolk Co., Va.

FOR SALE.—61 acres of good farming land in Bedford Co., Pa.; two log houses and barns; springs of pure soft water; good bearing fruit; a place for poultry and bees. Price $900, on easy terms if you mean business; for particulars address GEO. MCVICKER, Kegg, Pa.

The Laying Hen is the Paying Hen.

Increase Your Egg Yield Double Your Profits.

MAKE YOUR HENS LAY MORE EGGS

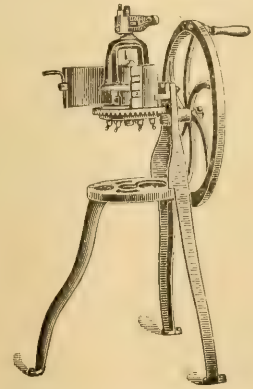
Right now, when prices are high, is when you want eggs the most and want the most eggs.

Doubtless your flock is doing the best it can under the circumstances.

At this season of the year particularly hens must have green bone, and the better it is prepared, the better use they can make of it.

It not only means more eggs, but it means fertile eggs. You can easily double the egg yield of your flock by feeding fresh-cut green bone as prepared by a

MANN'S LATEST MODEL BONE-CUTTER



SENT ON
10 DAYS'
FREE
TRIAL.

NO MONEY
IN ADVANCE.
TRY IT
FIRST.

THE BONE-CUTTER YOU WANT.

Mann's is the only bone-cutter made sold on such liberal terms, because it is the only bone-cutter that can stand this test.

Mann's is the only bone-cutter that cuts all bones, hard or soft, of any size, with all adhering meat and gristle.

You don't have to chop the bones first with an ax. Just throw them in the hopper and turn the wheel.

Patented Self-governing Feed Adapts the Cutting to Your Strength.

You don't have to use any more strength on hard bones than you do on soft ones. It prepares the bone better than any other cutter, so that the hens relish it, and turn every morsel to good use.

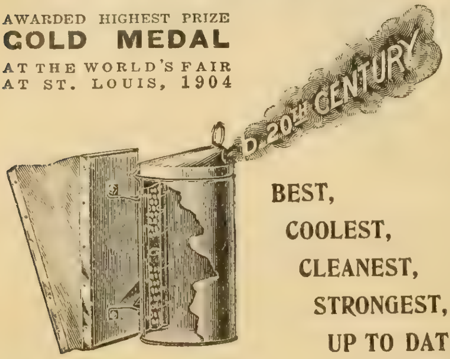
DON'T EXPERIMENT. GET A MANN'S AND BE SURE.

Send for our catalog to-day, and ask for Free Trial particulars.

F. W. MANN CO., Box 37, **Milford, Mass.**

The DANZENBAKER 20th CENTURY SMOKER

AWARDED HIGHEST PRIZE
GOLD MEDAL
AT THE WORLD'S FAIR
AT ST. LOUIS, 1904



BEST,
COOLEST,
CLEANEST,
STRONGEST,
UP TO DATE.

THIS SMOKER SENT OUT READY TO USE

Why and Where It is Winning Its Way

GOLD MEDAL
BEE-SMOKER

HIGHEST HONOR AT WORLD'S FAIR
ST. LOUIS, MO., 1904

THE PERPENDICULAR GRATE seen above has a dividing rib at the center of the draft-hole, midway of the fire-cup, in line with the only opening of the bellows, for directing and deflecting the air upward and downward, or both ways if desired. The upper current cools and forces the smoke out the nozzle, as it burns from the top downward, while the lower current fans the fire until all the fuel is consumed.

THE LEGS ARE LIGHT but very strong, being braced and riveted through the fire-cup and grate, and are rigidly held to the bellows by bolts with a special washer that keys the nuts when tightened, so that they can not be lost.

COMPACT AND CLEAN.—The new cap is very light and strong, with the patent improved hinge. It fits snugly on the fire-cup. It is always clean, permitting the smoke to pass out freely at the proper angle, there being no parts that can clog with soot, as is the case with other styles having top-heavy snouts and nozzles that are ever choking up.

SIMPLICITY AND DURABILITY are assured by all that is needed, and nothing more. The only opening of the bellows has no valve or conducting air-tube, to wear, tear, or break. There is nothing to get out of order. The openings of the fire-cup and bellows are spaced to give a direct blast without drawing creosote *back* into the bellows.

DOUBLE-WALLED.—The inside and bottom of the fire-cup are lined with non-conducting asbestos paper backed by a removable sheet of metal to prevent the fuel burning the tin off the outside cup, and keeping it cool enough for safe handling. This lining can be renewed for 10 cents, hence the smoker will outlast any other.

COOL FIRE-HOLDER.—The side fire-grate admits air at top and side mainly, hence the fuel burns from the top like a candle, leaving the bulk of the fuel and the bottom of the fire-cup cool—giving plenty of cool smoke three times as long as other smokers.

NET FUEL CAPACITY of the Twentieth Century Smoker's 3½x7-inch fire-cup equals that of the four-inch smokers, and nearly doubles that of any other 85-cent or $1.00 smoker in the market.

TRUE ECONOMY.—It is poor practice to buy a fifty-cent smoker that is so cheap that it burns or rusts out in a single season. You can not get something for nothing, even in smokers. Far better and cheaper to buy the best, made of the best materials, for a dollar, that will outlast a dozen cheaper ones, and continue to please, as the longer you use it the better you will like it.

IT COSTS NOTHING for a day's trial to prove its merits, as safe arrival and satisfaction are guaranteed. If you are not satisfied, write us and the price paid will be cheerfully refunded on return of the smoker, as we do not expect and can not afford to have one dissatisfied purchaser. We trust that you will kindly help us by telling others of its merits.

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:
I have given your Twentieth Century Smoker a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.—N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until all the fuel has been consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."
Grant Stanley, Nisbet, Pa.

A GRAND SUCCESS; NO CREOSOTE.—"I have been using your Twentieth Century Smoker several weeks, and I unhesitatingly assert that, of the varied assortment I have used, and have in cold storage, yours has proven by far to be the best. Besides furnishing an abundance of cool smoke at all times, and at the right place by dispensing with a nozzle and supplying an adequate grate, you have absolved your smoker from that abominable pest, creosote. It is a grand success over all others." W. O. Hogarty, Quindaro, Kan.

NEVER TOO HOT TO HOLD.—"I am well pleased with the Twentieth Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."
Reginald Munson, Washington, D. C.

O. K. EVERY WAY.—"The Twentieth Century Smoker is the best I have ever seen, and is o. k. in every way."
F. C. Gifford, Vero, Fla.

BEST IN TWENTY YEARS.—"I have used your Twentieth Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date." M. D. Andes, Bristol, Tenn.

A VETERAN OF FORTY YEARS.—"After having given your Twentieth Century Smoker a thorough trial, I do not hesitate to say it has nothing to compete with it in the smoker line, and I have used nearly all I have ever seen." Wm. T. Kerrick, Washington, D. C.

LARGE VOLUMES OF COOL SMOKE.—"I was truly glad to hear from you, as I think your smoker one of the best, giving large volumes of cool smoke, and it never goes out half full." Jas. A. Russell, Mt. Gilead, O.

PRICES

With other goods, or by express, $1.00; two, $1.90; three $2.50. By mail, 25 cts. each extra for postage.
Order in time of your nearest dealer. If he can not supply you, send to me.

EVERY THING GUARANTEED "ROOT QUALITY"

F. DANZENBAKER, MIAMI, DADE CO., FLORIDA

OR CARE THE A. I. ROOT COMPANY, MEDINA, OHIO

TO THE

BEE-KEEPERS

OF CANADA

WE ARE pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we are not able to offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers. Moreover, what we do list we propose to keep in large quantities, and will be able to ship promptly.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY
DEER PARK
Toronto - Ontario - Canada
CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

VIRGINIA BEE-KEEPERS

I can serve you promptly and with low freight charges. Root goods only. Bees and queens. Write for catalog.

W. E. TRIBBETT, SPOTTSWOOD, VA.

McADAMS SEED CO.

Root's bee-supplies a specialty. Growers of and dealers in garden, field, and flower seeds; seed potatoes; vegetable, flower, and small-fruit plants; fruit and ornamental trees. Breeders of Barred Plymouth Rocks. .·. .·. .·. Catalogs free.

McAdams Seed Co., Columbus Grove, O.

BIG STOCK OF BEE-SUPPLIES

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